INI-9100U and INI-9100UW

PCI ULTRA SCSI HIGH-PERFORMANCE
BUS MASTER HOST ADAPTER

USER'S MANUAL

initio®

Copyright

Copyright ©1996 by INITIO Corporation. All rights reserved.

Initio makes no warranty of any kind in regard to this material, including , but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Initio is not liable for any errors contained herein or incidental or consequential damages in connection with furnishing, performance or use of this material.

This document and the information contained herein are the property of INITIO Corporation. No part of this document may be reproduced, transmitted, stored in a retrieval system, transcribed, or translated into any language or computer language in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the express written consent and authorization of INITIO Corporation, 2188 Del Franco Street, San Jose, CA 95131

Trademarks

INITIO and INI are a registered trademark of INITIO Corporation. SmartSCSI is a trademark of INITIO Corporation.

MS-DOS, WINDOWS, WINDOWS for Workgroups, Windows 95, and WINDOWS-NT are trademarks of Microsoft Corporation.

NetWare is a registered trademark of Novell, Inc.

SCO is a registered trademark of Santa Cruz Operation, Inc.

UNIX is a registered trademark of Unix System Laboratories.

IBM and OS/2 are registered trademarks of International Business Machines Corporation.

Intel, i386, i486, i486DX2, and Pentium are trademarks of Intel Corporation.

Other manufacturers' product names that appear in this manual are for identification purposes only and are acknowledged to be trademarks or registered trademarks of their respective companies.

Changes

INITIO reserves the right to make changes in product design without reservation and without notification to its users. The material in this manual is for information only and is subject to change without notice.

Technical Support

Support is provided when you contact Initio Technical Support.

<div align="center">

Monday - Friday: 8:00 AM to 5:00 PM Pacific time
Phone: (408) 577-1919
Fax: (408) 577-0640

</div>

INITIO provides on-line support for software upgrades, utility programs, and other information 24 hours a day; using 8 data bits, 1 stop bit, and no parity at speeds up to 28.8K baud.

<div align="center">

Initio Corporation BBS: (408) 577-0431

</div>

INITIO provides on-line support for software upgrades, utility programs, and other information via the internet by:

<div align="center">

email: support@initio.com
www: http://www.initio.com

</div>

Outside of the US and Canada, contact your authorized INITIO distributor. If you received your INITIO hardware product as original equipment in a computer system, please contact that computer manufacturer for technical support.

The following information is needed to assist in problem resolution.

- Model type, serial number, and product description
- Type and version number of operating system you are using. (e.g., Windows 95)
- Software driver product type and version number.
- Motherboard BIOS version.
- Location of purchase.

The README.TXT File

The README.TXT file on the INITIO INI-9100U/9100UW DRIVER DISK 1 contains important information about last minute changes, updates and corrections to this manual. README is a standard ASCII text file that may be read with any word processor or text editor.

To view the README file from the MS-DOS prompt:

Type the following command from the MS-DOS prompt:

C:\> **type readme.txt | more**

This will permit you to page down the file, one screen at a time to read the file.

[THIS PAGE INTENTIONALLY LEFT BLANK]

Table of Contents

[THIS PAGE INTENTIONALLY LEFT BLANK]

Inside this manual

This manual explains how to install Initio INI-9100U/9100UW host adapter hardware and software drivers in most popular computer systems. The drivers are provided on diskette and support Novell NetWare V3.1x/V4.x, IBM OS/2, MS-DOS, SCO UNIX, Microsoft Windows 95, and Microsoft Windows-NT. Support for MS-DOS and Microsoft Windows 3.1x is on-board the BIOS. The INI-9100U/9100UW should be physically installed in the host computer before attempting to install the driver for your computing environment.

The following headings briefly describe each of the chapters in this manual.

Introduction

A description of the product features and the capabilities of the Initio INI-9100U/9100UW.

Getting Started

Identification of what information and equipment is required to setup a SCSI bus system.

Hardware Installation

A description of how to install and setup the Initio INI-9100U/9100UW host adapter hardware.

Host Adapter Setup

Provides an explanation of Initio's SCSI setup utilities, adding another dimension to SCSI bus versatility. Provides an explanation of how to customize the INI-9100U/9100UW host adapter for special system requirements.

MS-DOS/Windows

For MS-DOS operation, the INI-9100U/9100UW has built-in driver support for hard disk operation. If peripherals other than disks are used, such as CD-ROM or tape drives, the Initio ASPI driver will need to be installed. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1.

Microsoft Windows 95

Software drivers are included for the operation of Windows 95. Installation of the Windows 95 driver is explained in this section. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1.

Microsoft Windows-NT

Software drivers are included for the operation of Windows-NT. Installation of the Windows-NT driver is explained in this section. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1.

Novell NetWare

Directions for installing a software driver for the operation of Novell NetWare are provided. The installation procedure is explained in detail to simplify installation of a version 4.x system driver. Installation of a version 3.1x system driver is similar. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK1.

IBM OS/2

A software driver is provided for operation with a OS/2 system. Installation of the OS/2 driver is explained in this section. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1.

SCO UNIX

Software drivers are provided for the operation with SCO UNIX. The drivers allow the Initio INI-9100U/9100UW bus master to function at an optimum level of performance. The installation procedure is explained in detail and examples of screen displays are provided to simplify installation for the SCO UNIX driver. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 2.

SCO UnixWare

Software drivers are provided for the operation with SCO UnixWare. The drivers allow the Initio INI-9100U/9100UW bus master to function at an optimum level of performance. The installation procedure is explained in detail and examples of screen displays are provided to simplify installation for the SCO UnixWare driver. The driver may be found on the INITIO INI-9100U/9100UW DRIVER DISK 2.

Notational Conventions

The following conventions are used to provide you with common working procedures throughout this manual.

Convention	Description
UPPERCASE	Used to indicate the name files.
\<UPPERCASE\>	Used to indicate names of keys.
BOLD	Used to indicate user input.
Italicized text	Used to highlight important information.
[switch name]	Indicated an optional switch selection.

[THIS PAGE INTENTIONALLY LEFT BLANK]

Introduction

This Chapter Is About

- **What information this manual provides**

- **A description of the INI-9100U/9100UW host adapter**

- **The features built into the INI-9100U/9100UW**

Introduction

The Initio INI-9100U/9100UW host adapter

The INI-9100U and INI-9100UW are high-performance PCI bus master host adapters which provide the interface between the SCSI bus and the PCI local bus. In this *User's Manual* we use the term INI-9100U/9100UW to refer to both host adapter models. The Initio INI-9100U/9100UW supports 32-bit data transfers across the high bandwidth PCI bus at speeds up to 133 MBytes per second. The advanced Integrated Scatter/Gather Engine (ISGE)™ reduces the command overhead time enhancing the overall system response, thus providing exceptional performance for the Initio INI-9100U/9100UW PCI-SCSI host adapter.

An on-board utility program is designed into the host adapter to simplify SCSI bus set up. The SmartSCSI™ Setup Utility program enables simple integration of the INI-9100U/9100UW into most platforms and with many operating systems. The SmartSCSI™ Setup Utility will enhance the installation procedure of the host adapters and allow for complete self-integration in those systems that implement the current plug and play standards. The INI-9100U/9100UW complies with plug and play applications on systems using the PCI bus standard.

The INI-9100U host adapter will support asynchronous SCSI bus transfers to a maximum rate of 5 MBytes per second and synchronous ultra SCSI bus transfers to a rate of 20 MBytes per second. The INI-9100UW host adapter will support asynchronous SCSI bus transfers to a maximum rate of 10 MBytes per second and synchronous ultra wide SCSI bus transfers to a rate of 40 MBytes per second, as well as ultra SCSI transfers to a rate of 20 MBytes per second. Full support of UltraSCSI defined by the SCSI-3 specification, disconnect/reconnect and command queuing provides maximum bus utilization in multiple target implementations.
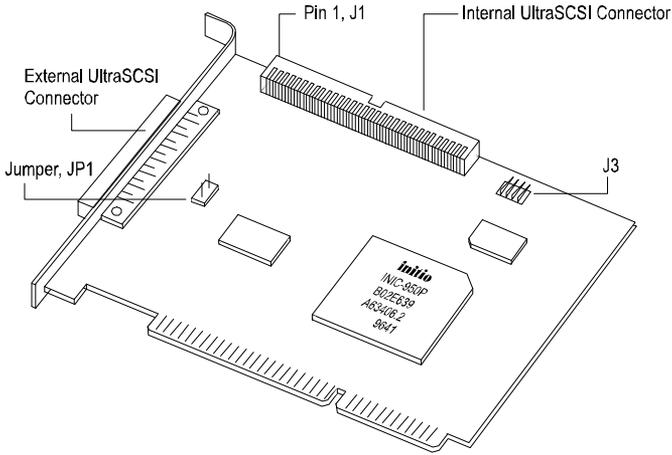
figure 1-1 INI-9100U Host adapter
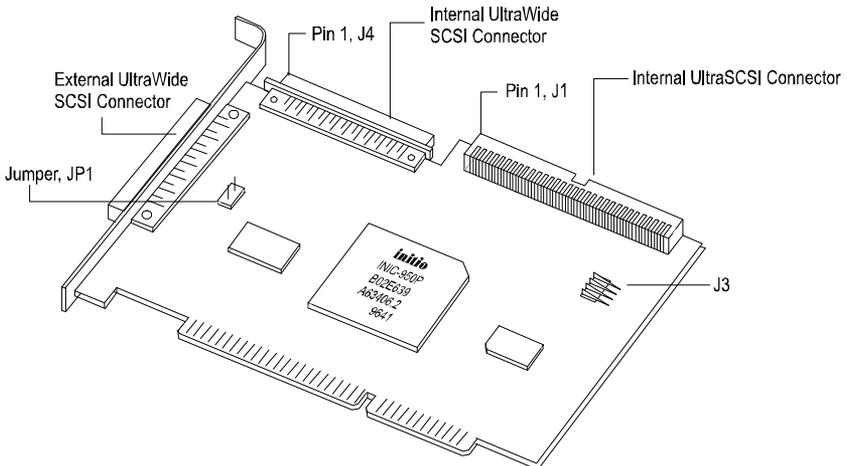
figure 1-2 INI-9100UW Host adapter

Application and peripheral support

The Initio INI-9100U/9100UW supports most operating systems with the addition of dedicated software drivers. The most popular operating system environments currently supported include MS-DOS, Microsoft Windows 95, Microsoft Windows-NT, Novell NetWare, IBM OS/2, SCO UNIX, SCO UnixWare. All of the commonly available peripheral devices used on the SCSI bus are supported by the INI-9100U/9100UW host adapters.

Plug and Play installation

The Initio INI-9100U/9100UW host adapter has been designed to take advantage of plug and play specifications and simplify installation. This once complex task is accomplished in the host adapter with on-board read only memory (ROM), that provides the necessary configuration mechanism for installation and booting without user intervention in PCI plug and play compliant systems.

Product features

PCI Compatibility	The PCI Bus is a 32-bit bus with multiplexed address and data lines. The INI-9100U/9100UW meets PCI bus protocol, electrical and mechanical specifications.
Plug and Play	The INI-9100U/9100UW host adapter has on-board read only memory (ROM) to provide the necessary configuration mechanisms for installation, configuration, and booting without user intervention.
133 MBytes per second PCI burst mode	The 32-bit data path for the PCI bus structure running in a synchronous mode at 33 MHz gives peak sustainable operating speeds of 133 MBytes/second.
Hard Drives to 8 Gigabytes per drive capacity.	Limitations on hard disk parameters for MS-DOS can be extended from 1 GByte to 8 GBytes.
40 MBytes per second Ultra Wide SCSI transfers with the INI-9100UW	Up to 40 MBytes/sec synchronous Ultra Wide SCSI data transfer for the INI-9100UW.
20 MBytes per second Ultra SCSI transfers with the INI-9100U	Up to 20 MBytes/sec synchronous Ultra SCSI data transfer for the INI-9100U.

Programmable SCSI Auto-Termination	Host adapter auto-termination is controlled automatically by hardware eliminating the need to remove system unit covers each time a change is made in SCSI bus configuration.
Onboard BIOS supports MS-DOS, Windows 3.1x	The INI-9100U/9100UW has the necessary software support on-board to run disk drive operations for MS-DOS and Windows 3.1x.
Windows 95, Windows-NT, OS/2, SCO UNIX, UnixWare and NetWare Driver Support	The INI-9100U/9100UW is compatible with all major operating systems.
Compatible with Hard Disk, CD-ROM, Optical, Tape, Printer, and other SCSI products	The INI-9100U/9100UW is a complete SCSI-2 implementation, including Ultra SCSI for the INI-9100U and Ultra Wide SCSI for the INI-9100UW. These products can be used with today's most popular multimedia and storage products.
ISGE® Integrated Scatter/Gather Engine	The INI-9100U/9100UW host adapter has incorporated hardware functions to provide increased performance in all Scatter/Gather operations.
No Hardware Jumpers to set	The INI-9100U/9100UW host adapter utilizes an intelligent software utility to set configuration options.
64-byte FIFO	A 64-byte FIFO is designed into the INI-9100U/9100UW host adapter and utilized as a matching buffer to manage PCI to SCSI bus structure timing for data and command transfer.
Command Queuing	A unique implementation to provide 255 simultaneous SCSI commands.

SCSI-3 compliant   The INI-9100U/9100UW host adapter is a fully
                         SCSI-3 compliant, implementing advanced features
                         such as:

      Tag Queuing

      Sync/Async Transfers

      Disconnect / Reselect Arbitration

Product specifications

Power Requirements

- 5.0 ± 0.25 V at 0.51 Amps maximum not including bus termination

Physical Dimensions

- INI-9100U   5.25" x 4.0" (13.35cm x 10.16cm)
- INI-9100UW 6.25" x 3.75" (15.88cm x 9.53cm)

Environmental Specifications

Operating Temperature

- 0 to 55 °C (32 to 131 °F)
- 10% to 90% relative humidity (non-condensing)

Storage Temperature

- -40 to 75 °C (-40 to 167 °F)
- 5% to 95% relative humidity (non-condensing)

Where to get help

Support is available if needed through Initio Technical Support as follows:

Monday - Friday: 8:00 AM to 5:00 PM Pacific time
Phone: (408) 577-1919
Fax: (408) 577-3254

INITIO provides on-line support for software upgrades, utility programs, and other information 24 hours a day using 8 data bits, 1 stop bit, and no parity at speeds up to 14.4 K baud.

-Initio Corporation BBS: (408) 577-0431

Or you can contact Initio via the Internet by: email: support@initio.com
www: http://www.initio.com

Outside of the US and Canada, contact your authorized INITIO distributor. If you received your INITIO hardware product as original equipment in a computer system, please contact that computer manufacture for technical support.

The following information is needed to assist in problem resolution.

- Model type, serial number, and product description.
- Type and version number of operating system you are using (e.g., Windows 95)
- Software driver product type and version number.
- Motherboard BIOS version.
- Location and date of purchase

[THIS PAGE INTENTIONALLY LEFT BLANK]

Getting Started

This Chapter Is About

- **Information on quick installation**

- **SCSI bus setup for internal and external peripherals**

Getting Started

Host adapter and the SCSI bus

The INI-9100U/9100UW is a bus mastering host adapter which works with the host computer to provide a means of control for the SCSI bus. By daisy chaining peripheral devices together, up to seven devices can be linked with the INI-9100U and up to fifteen devices can be linked with the INI-9100UW on the SCSI bus. The host adapter can be placed in any physical position on the bus.

SCSI devices communicate on the bus using bus arbitration. Bus arbitration gives each device an opportunity to use the bus based on the device priority on the bus. This is determined by the device ID and not the device's physical location. The INI-9100U/9100UW's ID is set at the factory with ID 7. This ID positions the host adapter in an ideal position for single adapter environment on the SCSI bus.

SCSI bus preparation

Each peripheral device that will be attached to the SCSI bus is either an internal or external device. Each peripheral will have a specific device ID, commonly referred to as a SCSI ID, which is set at the factory. Please refer to your peripheral documentation to determine switch or jumper settings for SCSI ID's. A key point to remember is, no two devices can have the same ID. The device ID uniquely defines the device to the SCSI bus.

When assigning a SCSI ID it is recommended to have the host adapter ID set at ID 7, this is the factory default setting for the INI-9100U/9100UW. The exact physical location of the device on the bus has no relationship to the SCSI ID of the device. If you plan to boot your system from a SCSI disk drive, set that boot drive at ID 0 for best operation with most operating systems. A second drive, if used, can be set to ID 1 with additional devices using sequentially higher ID numbers.

SCSI bus termination

The SCSI bus structure has a length limitation as well as a requirement for termination at each end of the SCSI cable. The cable is designed to connect in a daisy chain fashion with only one peripheral being connected to another. No branching is permitted in the SCSI bus. The first and last physical SCSI device on the SCSI bus must be terminated (see figure 2-1).

No Termination

Termination

No Termination

No Termination

No Termination

Termination

Termination

No Termination

Termination

Termination

No Termination

No Termination
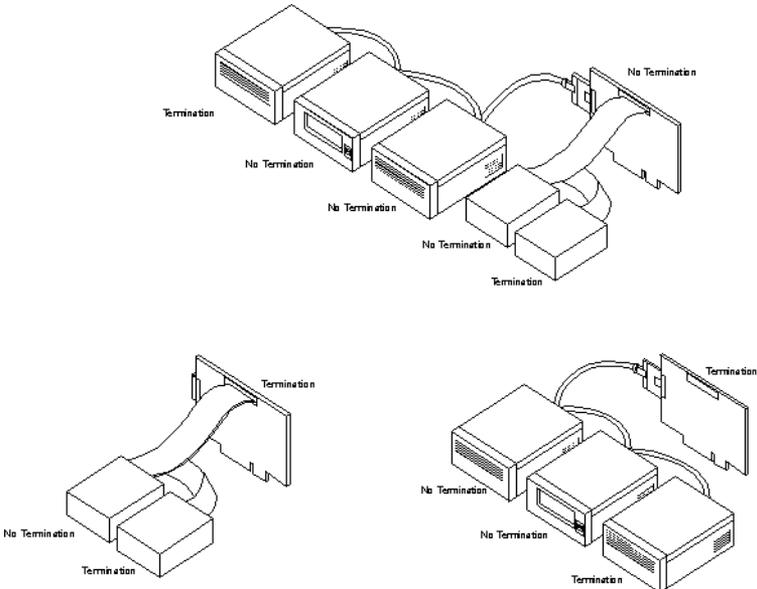
Termination

figure 2-1 Examples of SCSI bus termination

The INI-9100U/9100UW host adapter's auto-termination is software controlled by the SmartSCSI™ Setup Utility. This feature allows the operator to switch on or off the auto-termination. If auto-termination is switched off, the operator can manually adjust termination for the host adapter without the need to remove the cover on the host system each time a change is made in the SCSI bus configuration. There are three ways to manually control terminating the INI-9100U on the SCSI bus (see table 2-1) and there are six ways to terminate the INI-9100UW on the SCSI bus (see table 2-2).

SCSI Devices Configuration	Host Adapter Termination
Internal devices only	On
External devices only	On
Internal and external devices	Off

table 2-1 INI-9100U possible termination settings

SCSI Devices Configuration	Host Adapter Termination Low	High
68-pin internal connector only	On	On
68-pin external device only	On	On
50-pin internal only	On	On
68-pin internal and 68-pin external devices	Off	Off
50-pin and 68-pin internal devices	Off	On
50-pin and 68-pin internal devices and 68-pin external device	Invalid Configuration	

table 2-2 INI-9100UW possible termination settings

Installation basics

The INI-9100U/9100UW PCI to SCSI Bus Master host adapter is installed into a computer system with a PCI bus. The host adapter supports 32-bit data transfers across the PCI bus at speeds up to 133 MBytes per second. The Initio host adapter has no switches or jumpers to set, increasing the ease of installation.

The SmartSCSI™ Setup Utility provides simple integration of the INI-9100U/9100UW into most platforms and operating systems. The INI-9100U/9100UW on board BIOS will allow for complete integration in those systems that implement Plug and Play. With the SmartSCSI™ Setup Utility you are able to conveniently turn on or off the SCSI auto-termination as well as manually control the SCSI terminators without opening the system unit to

reconfigure the SCSI bus. The utility also provides a smart and simple method of access to other more advanced SCSI bus configuration features.

Unpacking and inspection

When you receive your INI-9100U/9100UW, please inspect the external packaging for any visible sign of damage and return the package if damaged. The carrier is responsible for any damage incurred during shipping and storage. If the package is damaged please contact the carrier immediately.

Quick installation overview

The following description will provide you a brief overview of the installation procedure and is intended for the experienced installer, for detailed installation instructions refer to the chapter titled **Installation**.

Installing the INI-9100U/9100UW host adapter and cabling

- Power down and unplug the computer. Then remove the cover on the host system.

- Take precautions to eliminate accidental static discharge to the host adapter by touching the system unit chassis after it has been powered down.

CAUTION

Static discharge may damage sensitive electronic components and void product warranty.

- Install the host adapter by inserting it into the PCI connector in the host computer. Orient the host adapter so that the external connector will be facing the rear of the system unit when inserted. Refer to your PC documentation to locate a PCI connector.

- Install the internal cable by matching the cable 'striped side' with the card connector '∇', J1 pin 1 on the INI-9100U/9100UW. Complete the SCSI bus by connecting the cable to the other SCSI peripherals in your system. Please refer to the specific peripheral manufacturers users manuals for proper SCSI cable installation.

- Close the cover on host computer. This completes the hardware installation of the INI-9100U/9100UW.

Cable termination

- Host adapter auto-termination is software controlled by the SmartSCSI™ Setup Utility. Auto-termination is enabled by default during power-up. Recall that first and last physical SCSI device on the SCSI bus must be terminated.

- Refer to the specific peripheral manufacturers users manual for proper SCSI cable termination.

Configuring the host adapter

Host adapter configuration is performed automatically by the host adapter BIOS during power-up. The factory settings are designed for best operation. However, the host adapter can be configured to meet your special operating environment, using the SmartSCSI™ Setup Utility described below.

The INI 9100U/9100UW host adapter includes an on-board configuration utility called the SmartSCSI™ Setup Utility. The utility is accessible during the system boot routine, after the Initio banner is displayed, by pressing <Ctrl>+<I> on the host system keyboard. The SmartSCSI™ Setup Utility is resident in the host adapter's Read Only Memory (ROM). The purpose of the SmartSCSI™ Setup Utility is to customize SCSI/BIOS-related parameters and perform low level SCSI disk formatting when required. Once the configuration is established the information is saved in on-board non-volatile memory which can be modified when necessary in

future sessions.   Please refer to section 4-2 in this user's manual for detailed information on the SmartSCSI™ Setup Utility.

Hardware Installation

<u>**This Chapter Is About**</u>

- **Installing the INI-9100U/9100UW**

Hardware Installation

Introduction

This chapter will provide the installer with instructions for the installation of the Initio INI-9100U/9100UW host adapter. If you are not familiar with SCSI systems architecture or host adapter installation, this chapter will provide detailed installation instructions.

Preparing your SCSI device

The INI-9100U/9100UW host adapter allows for versatility in building your SCSI bus configuration. The INI-9100U host adapter can be connected to a maximum of seven SCSI devices. The INI-9100U has one internal 50-pin connector and one 50-pin high density external connector. The internal cable permits connection of multiple internal devices. SCSI devices that are connected to the internal connector are installed inside the host computer enclosure. The external connector is accessible through the D-shell connector at the back of the host system is designed to connect devices outside the host system enclosure. The cabling required for an external SCSI bus configuration is not included with this kit.

The INI-9100UW can be connected to a maximum of fifteen SCSI devices. The INI-9100UW has two internal connectors: one 68-pin high density ultra wide SCSI connector; and one 50-pin connector. They are used for attaching internally mounted devices by means of a ribbon cable. The INI-9100UW also features one 68-pin high density external connector for attaching external devices. The internal cable permits connection of multiple internal devices. SCSI devices that are connected to the internal connector are installed inside the host computer enclosure. The external connector is accessible through the D-shell connector at the back of the host system is designed to connect devices outside the host system enclosure. The cabling required for an external SCSI bus configuration is not included with this kit.

Figure (3-1) identifies the major components of the INI-9100U host adapter, and figure (3-2) identifies the major components of the INI-9100UW host adapter. Table (3-1) describes each component. Please note that some components may be marked differently on the two host adapter models. You may find it helpful to refer to these illustrations while installing the host adapter and attaching the cables.
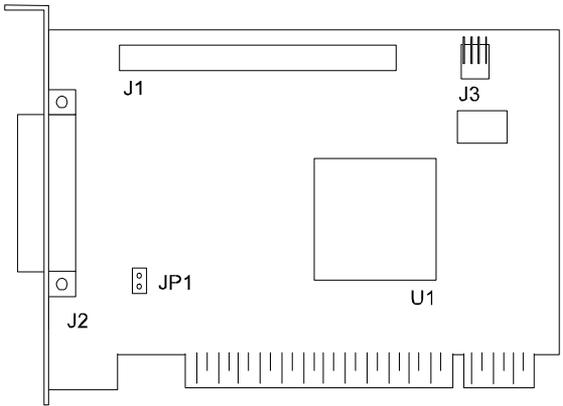
figure 3-1 INI-9100U Board Layout
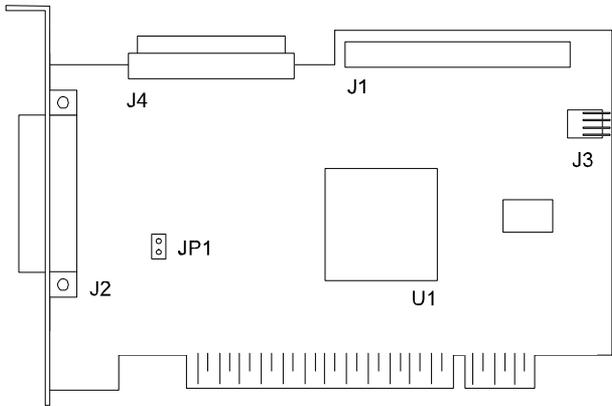
figure 3-2 INI-9100UW Board Layout

INI-9100U	INI-9100UW	Description
J1	J1	50-pin Internal Ultra SCSI Connector
	J4	68-pin Internal Ultra Wide SCSI Connector
J2		50-pin External Ultra SCSI Connector
	J2	68-pin External Ultra Wide SCSI Connector
JP1	JP1	Active Termination Jumper for Multiple Initiators
J3	J3	External Drive Activity LED Connector

table 3-1 Component Description

To increase the reliability of the cabling being used with the INI-9100U/9100UW, it is recommended that the following guidelines be observed:

- Synchronous SCSI - up to 6 meters or 20 ft
- Fast SCSI - up to 3 meters or 10 ft
- Ultra SCSI - 4 devices, up to 3 meters or 10 ft
- UltraWide SCSI - 4 devices, up to 3 meters or 10 ft
- Ultra SCSI - 7 devices, up to 1.2 meters or 4 ft
- UltraWide SCSI - 8 devices, up to 1.2 meters or 4 ft
- Use high quality twisted pair cable.
- Impedance of the cable should be between 90-110 ohms.
- Use high quality shielded connectors.

Installation in ten easy steps

The following steps will guide you through the installation of the INI-9100U/9100UW host adapter into the host system. The host adapters are designed to be inserted into a PCI bus compliant host computer system. If you are an experienced installer and have installed this product according to the "Quick Installation Guide" then skip to Chapter 4.

1. Power down the host computer and all peripherals.

Remove the cover from the host system. You may need to refer to the system manual for cover removal. If necessary, identify the PCI sockets inside the host system with the aid of the system documentation.

2. **Use static electricity discharge precautions.**

   Remove possible static discharge potential from any objects that the host adapter may come in contact with before installation. This can be accomplished by touching a bare metal chassis rail after you have turned off the power. This precaution will prevent possible damage to the host adapter before removing the INI-9100U/9100UW from its protective packaging.

   ## CAUTION

   Static discharge may damage sensitive electronic components and void product warranty.
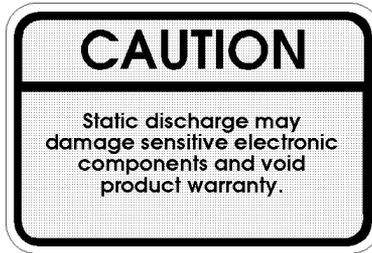
3. **Inserting the host adapter**

   Orient the host adapter for installation so that the external connector is facing the back of the System unit and align the card with the PCI connector on the system unit (see figure 3-3).

   Holding the adapter by the mounting bracket and the card edge, match up the card edge connector with the PCI host computer socket and insert the card into the socket. Once the connector is in the PCI expansion slot socket tighten the mounting bracket screw to secure the card in place. The host adapter requires no switches or jumpers to be set when used in PCI plug and play systems.
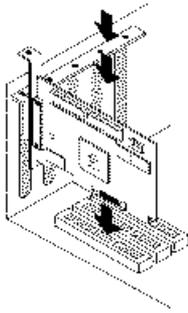
NOTICE

The PCI connector is keyed to prevent improper insertion. However, the PCI board can be incorrectly inserted into another connector. This may cause damage to you system and void your warranty.

figure 3-3 Inserting the INI-9100U/9100UW into a PCI slot

4.   Installation of internal SCSI cables

The INI-9100U has one 50-pin internal SCSI bus connector and the INI-9100UW has two internal connectors: one 50-pin flat ribbon SCSI connector, and one 68-pin high density ultra wide SCSI connector; both internal connectors may be used in tandem or singularly, depending on your bus configuration.   Installation of internal SCSI cables must be performed before replacing the system covers. The internal ribbon cable is made with multiple connectors attached and used to daisy chain the host adapter with two or more devices. It is important that the cable installed correctly for proper operation. The cable has a colored stripe running the length of the cable, on the edge distinguishing the pin one side of the connector. These identifying markings must match when mated on the host adapter board.

When attaching ultra wide SCSI internal devices, use the 68-pin high density wide SCSI internal cable connector. This connector, identified by J4 on the host adapter (refer to figure 3-2), is keyed for proper orientation and connection. Insert on end of the internal wide ultra SCSI cable into the INI-9100UW host adapter and the other connectors in a similar fashion into your ultra wide SCSI connectors as described in the appropriate manufacturers instructions.

When attaching ultra SCSI devices, use the 50-pin ultra SCSI cable connector, identified by J1 on the host adapter (refer to figure 3-4). This connector has a triangle marking that identifies pin-one. Align the internal cable into the host adapter and the other cable connectors

in a similar fashion into the other SCSI device connectors as described in the appropriate manufacturers instructions.
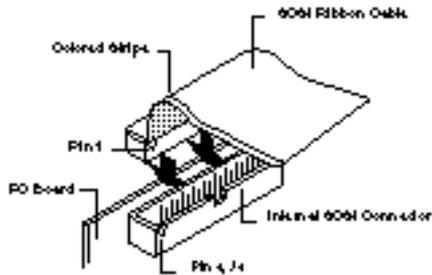
figure 3-4 Connecting the 50-pin internal flat ribbon cable

5. Drive activity LED

A drive activity LED is designed into the INI-9100U/9100UW host adapter to indicate when a data transfer is being made. Connection to the LED is optional and cabling is not included with this kit. The INI-9100U/9100UW host adapter has a four pin connector located at J3 (refer to figure 3-1) to accommodate an LED cable.

6. Multiple Initiators

Under some circumstances multiple initiators can be used on a single SCSI bus. The bus is configured to have more than one host adapter inserted into at least two distinctly different computer systems sharing peripheral devices. In theses circumstances, it is possible to have one of the two computer systems turned off. Under theses conditions, the INI-9100U/9100UW has a jumper JP1, that can be enabled (closed) to set the active on-board termination on all the time, regardless of whether power is applied or not. The host adapter is shipped without the jumper installed and need not be changed in most cases.

7. Installation of external SCSI cables

Installation of external SCSI cables can be performed after the cover has been closed. The cable is limited in length to a total of six meters including any internal cabling. The external cable can be daisy chained to include up to seven devices with the INI-9100U/9100UW in combination with internal devices. The external cable is designed to be inserted only one way requiring termination at the end peripheral device on the bus (see figure 3-5).
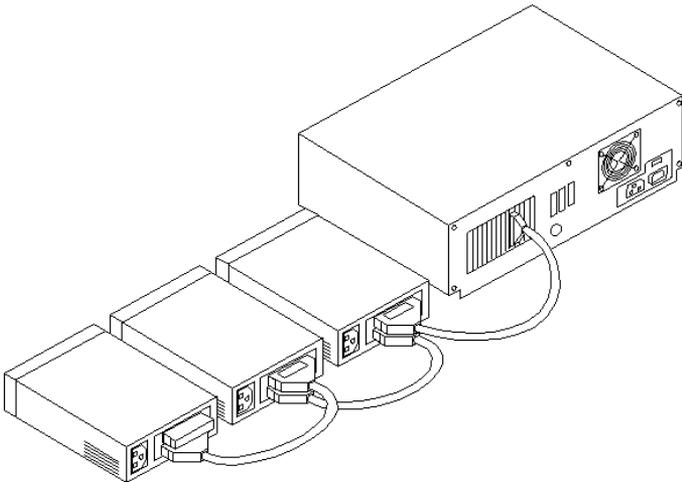
figure 3-5 External cable connection

8. Host computer configuration

Most computer manufacturers with a PCI bus automatically configure the add on-card or host adapter I/O Port address, IRQ Channel and BIOS address. If this is not the case with your computer system you will need manually configure your system.

There are two means of configuring the PCI bus from the host computer system:
1. Setting jumpers on the host system motherboard.
2. Setting CMOS BIOS incorporated into the host system.

You will need to refer to the host computer system documentation to complete PCI bus activation and setup.

If the host system will be using a SCSI device to provide system boot capability, then the system CMOS drive type settings may need to be changed. Under some conditions the system will expect the boot disk to be an IDE drive. This must be changed in order to boot from a SCSI device.

9. System startup

Visually inspect the configuration you have installed to verify that all cables have been inserted correctly. Close the cover on host computer. Hardware installation for the INI-9100U/9100UW is now complete.

The newly installed SCSI bus is now ready to power up. Switch on peripheral and host computer system power. The system monitor should display the following information, but may vary, based on the system BIOS manufacturer.

- The normal Power-On Self Test and memory test procedure.
- The host adapter sign on message including a list of attached SCSI devices.

The list should match the peripheral devices attached to the bus. In most cases the host computer system is now configured and ready for use.

Some situations will require that a low-level format be performed using the host adapter SmartSCSI™ Setup Utility to initialize a SCSI disk drive and lay the foundation for a bootable SCSI drive.

10. SmartSCSI™ Setup Utility

The SmartSCSI™ Setup Utility simplifies the SCSI installation process by eliminating the need for opening the system to change system jumpers and switch settings. All necessary host adapter functions are accessible through the utility, simplifying customization for your system needs. Initio's SmartSCSI™ Setup Utility is divided into five segments identified by: Scan Bus; Device Setup; Adapter Setup; BIOS Setup; and Disk Utility. All of these program functions

are accessible during Boot procedures by typing <CTRL><I>. The SmartSCSI™ Setup Utility is covered in greater detail in the chapter titled Host Adapter Setup.

Hard disk drive preparation

A new SCSI disk drive is normally low-level formatted at the factory to simplify installation. The drive can be used as it comes from the factory once it is partitioned for system operation.

In cases where a drive has been used with other host adapters the drive should have a low-level format performed. This procedure will eliminate any problems that could arise from incompatibility with different adapters that could affect operation or reliability. A low-level format will destroy any data left on the drive at the time of formatting. If you wish to save the data before the low-level format is performed, a backup disk of the files will need to be made.

Low-level format

A low-level format will erase any data that is stored on the target disk. Before attempting to perform a low-level format be sure the data on the target disk has been backed up. A low-level format can be achieved via the SmartSCSI™ Setup Utility for the INI-9100U/9100UW.

The low level format sets the media to a state which is easily recognized by the host adapter on the SCSI bus. Once this format is completed, you will need to partition the drive. Refer to your operating system documentation for further information on partitioning drives.

Host Adapter Setup

This Chapter Is About

- **How to start the SmartSCSI™ Setup Utility**

- **Description of SmartSCSI™ features**

Host Adapter Setup

Configuring the host adapter

The INI-9100U/9100UW host adapter is a plug and play host adapter which eliminates the need to toggle switches for the host adapter to function in PCI plug and play systems. Once the host adapter has been installed into the host computer system it is not necessary to remove the host computer's cover if changes are made to your system configuration. The SCSI bus protocols that your system requires are set by SmartSCSI™. The SmartSCSI™ Setup Utility is a program that enables easy access to SCSI bus and host adapter setup and provides the tools to fine tune your host adapter to meet your SCSI bus requirements.

When to use the SmartSCSI™ Setup Utility

The Initio host adapter is pre-configured to function in most SCSI bus environments while providing the highest performance levels for storage and other peripheral devices. This utility enables added versatility in configuration of the host adapter by giving the operator the flexibility to customize settings and perform low level formats of disk media if required.

Running the SmartSCSI™ Setup Utility

To start the SmartSCSI™ Setup Utility, verify that all devices attached to the SCSI bus are powered up when the host computer system is turned on. Once the power switch has been turned on and the system begins its on screen power up sequence, the Initio banner, shown below, will be displayed for a brief period. During this time the Initio SmartSCSI™ Setup Utility is accessible by pressing the "Control" key and the "I" key at the same time. The following message when displayed on your system monitor indicates that the host system is ready to accept your keyboard input.

!!! Press <Ctrl> <I> for SmartSCSI Setup Utility !!!

Main menu options

The main menu provides five possible setup options for meeting your system configuration.

- Scan Bus
- Device Setup
- Adapter Setup
- BIOS Setup
- Disk Utility

Scan Bus

This option scans the SCSI bus. All device ID's are displayed on the screen including SCSI ID's without devices attached. This allows for a better definition of location and priority on the SCSI bus.

- A device ID should only be changed if it conflicts with another device address on the same bus. Refer to your peripheral documentation for changing SCSI ID's.
- The best ID for a bootable hard disk is SCSI ID 0.

Device Setup

All device ID's for the INI-9100U/9100UW are displayed on screen, including SCSI ID's without devices attached. This allows for a better definition of location and priority on the SCSI bus.

Asynchronous Transfer. Use this option to set the synchronous data transfer mode. The INI-9100U/9100UW host adapter will transfer data at a maximum rate of 5 MBytes per second in asynchronous mode and 20 MBytes per second in synchronous mode. The INI-9100UW host adapter will transfer data at a maximum rate of 10 Mbytes per second in asynchronous mode and 40 Mbytes per second in synchronous mode. Use this option to set the synchronous data transfer mode. The default setting for this option is for synchronous operation. (no)

Maximum Synchronous Transfer Rate. This option determines the speed at which data is moved across the SCSI cable. The INI-9100U has the option of running up to 20 MBytes per second and the INI-9100UW has the option of running up to 40 Mbytes per second. (20)

DOS Space > 1 GB. Using this option allows for single disk capacities to be extended up to 8 GBytes (yes). Please refer to the Appendix titled DOS Space > 1 GB for further information on this feature.

- (NO) DOS limits the number of cylinders per drive to 1024. The host adapter defines head and sector usage to 64 heads and 32 sectors. This format allows for maximum capacity of 1 gigabyte per disk storage.
- (YES) The upper limit can be extended from 1 GByte to 8 GBytes by increasing the number of heads to 255 and sectors used per track to 63. This is a powerful option. DATA CAN BE LOST BY CHANGING SETTINGS.

CAUTION

Changing from 1 to 8 GByte format or back will erase stored data.
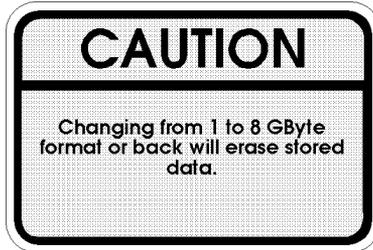
Spin Up Disk Drive. This option is used to initiate motor spin-up for SCSI disk drives. The host adapter BIOS can limit system power requirements during power-up. This is accomplished by signaling the device to start at delayed intervals. (no)

Enable Disconnect. The host adapter uses this option to allow a device to temporarily disconnect from the SCSI bus (referred to as disconnect/reconnect). This allows the host adapter to perform other functions on the bus while the device is temporarily disconnected. The device and the host adapter can then reconnect when the bus is needed. (yes)

Enable Wide Negotiation (INI-9100UW ONLY). This option determines whether the host adapter initiates wide data transfer with the specified SCSI device. However, not all SCSI devices can handle wide data transfer properly and this may cause problems with your system. If problems arise from wide SCSI negotiation, disable this option. The normal setting for this option is enabled (yes).

Host Adapter Setup

Host Adapter SCSI Bus ID. Used to change the adapter's SCSI ID on the SCSI bus. The INI-9100U provides eight ID's available numbered 0-7, with 7 having the highest priority. The INI-9100UW provide sixteen ID's available numbered 0-15, with 15 having the highest priority. The default ID is 7 for the INI-9100U/9100UW.

Installation of additional host adapters is permitted on the same PCI bus. This will allow the system to have more than one SCI bus attached. Under these conditions SCSI ID's can be repeated.

Boot Device ID. This option selects which SCSI device will be the designated boot device for the system. The INI-9100U/9100UW provides seven SCSI ID's available to boot from. The default ID for this option is 0.

SCSI Terminators. This option is used to set auto-termination located on the host adapter card. This option is also used to manually control termination on the host adapter. The normal setting for this option is auto.

SCSI Parity Check ON. Select this option to enable or disable parity checking on the SCSI bus by the host adapter. The default setting for this option is on. (yes)

BIOS Setup

Enable Host Adapter BIOS. This option controls the host adapter usage of SCSI disk I/O routines inside the INI-9100U/9100UW BIOS. By disabling this option you will eliminate the host adapter's ability to utilize boot capabilities in the INI-9100U/9100UW. Setting this to "no" will also disable all subsequent features displayed by this on-screen panel. (yes)

BIOS Support For More Than 2 Drives. This option supports 2 or more disk drives on the SCSI bus for MS-DOS 5.0 or later when enabled. The optimum device identification (ID) for multiple drive operation is device ID 0 for a system disk and device ID 1 for the second drive. (yes)

BIOS Treat Removable Disks as Fixed Disk. This option is able to treat removable disks as fixed disks. With this option selected you can run removable disk media without additional software drivers. To have the ability to interchange media during operation, additional third party drivers will be needed for that peripheral device. (no)

CAUTION

Removing the disk media during operation will result in lost data.

Disk Utilities

Format Disk. Use this option to perform a low level disk format on the target device. The format will erase all data resident on the targeted disk drive. Refer to the section titled "Hard Drive Preparation" for additional information.

Verify Disk. This option will verify the media of a successfully formatted device and verify that the drive is functioning properly. Verify will also identify and flag any bad sectors on the disk so that during operation these flagged sectors will not be used. If a bad sector is found you are given two options show below:

- **Reassign** will assign the flagged location to another sector on the disk.
- **Skip** will not reassign the flagged location.

MS-DOS/Windows

<u>This Chapter Is About</u>

- **Installing the Initio ASPI Driver to an Existing MS-DOS System**

- **Installing the Initio ASPI Driver to an Existing Windows 3.1x System**

- **Device Driver Command Line Options**

MS-DOS Driver Installation

Overview

The on-board BIOS initialized during the power up boot routine only supports MS-DOS hard disk operation. If peripherals other than disks are used, such as CD-ROM or tape, the Initio ASPI driver will need to be installed in addition to third party applications and utilities such as the Corel SCSI utilities included in this kit. The Initio ASPI driver will support extended SCSI command functions for MS-DOS 3.30 or later.

Installation

The installation procedure guides you through the installation of the Initio DOS ASPI and the ASPI for Windows 3.1x drivers. The installation procedure described here requires some experience in MS-DOS or Windows 3.1x system setup and administration. The device driver is transferred from the INITIO INI-9100U/9100UW DRIVER DISK 1 to the hard drive where it is automatically initialized during the system boot routine.

The INITIO INI-9100U/9100UW DRIVER DISK 1 contains two installation programs that perform the same task. If you have completed installing the Initio ASPI driver using the MS-DOS based installation routine described in this *User's Manual*, it is not necessary to repeat the procedure for a Windows 3.1x environment on the same system.

Installing the Initio ASPI driver to an existing MS-DOS system

The ASPI driver is found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the SCSI bus hardware, and operating system are installed correctly before proceeding further. If you need help installing the MS-DOS operating system, please refer to the MS-DOS manual before proceeding.

1. Turn on host system and boot into MS-DOS.

2. Insert the **INITIO INI-9100U/9100UW DRIVER DISK 1** into your floppy drive.

3. At the MS-DOS prompt, change to your active floppy drive (e.g., type **A: <ENTER>**).

4. Type **DOSSETUP <ENTER>**

   - A series of screens will guide you through the installation of the ASPI device drivers.

5. The first screen sets the installation drive and directory that the ASPI driver will be installed on. Follow the on-screen directions and/or options to continue the installation.

6. To activate the device driver, reboot the system by pressing **<CTRL> + <ALT> + <DEL>.**

If a CD-ROM, tape drive, scanner, or optical drive is installed on your system, a third party device driver is needed.   A driver may be provided by the manufacturer and is used in addition to the Initio ASPI driver to provide proper support for that device. Please refer to your peripheral device manufacturer documentation for additional information.

Installing the Initio ASPI driver to an existing Windows 3.1x system

The ASPI for Windows 3.1x driver is found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the SCSI bus hardware, and operating system are installed correctly before proceeding further. If you need help installing Windows 3.1x, please refer to the Microsoft Windows manual before proceeding.

1. Turn on host system and boot into MS-DOS and Windows
   3.1x operating system.

2. Insert the **INITIO INI-9100U/9100UW DRIVER DISK 1** into your floppy drive.

3. Use your installed mouse or the appropriate key strokes to select **RUN…** from the Windows PROGRAM MANAGER.   Execute the following steps:

   - Type **A:\SETUP <ENTER>.**   A series of screens will guide you through the installation of the ASPI for Windows device drivers.

- Choose **CONTINUE** to continue the installation sequence.

- Choose **CONTINUE** to accept the Host Adapter selection.

4. Two installation options are available:

   - Choose **EXPRESS INSTALL** to install both the DOS ASPI drivers and the Windows 32-bit Disk Access drivers. Use this option if you are unfamiliar with configuring a DOS or Windows manually.

   - Choose **CUSTOM INSTALL** to select <u>DOS ASPI</u> drivers or the <u>Windows 32-bit Disk Access</u> drivers manually. Use this option only of you are familiar with configuring a DOS or Windows PC manually

5. Follow the on-screen directions and/or options to continue the installation.

   - Choose **CONTINUE** to accept the default directory <u>or</u> enter the full directory where you want ASPI drivers installed.

   - Choose **CONTINUE** after all the files have been copied and installed to your system.

   - Select **YES** to make the required changes to your system's CONFIG.SYS and SYSTEM.INI configuration files.

   - Once the SETUP COMPLETE screen is displayed, choose **CONTINUE**..

6. Last minute changes to this User's Manual will be displayed in the README.TXT file that is shown. To exit the README.TXT file, use your installed mouse or the appropriate key strokes to select **FILE,** then **EXIT** from the Note Pad FILE MENU.

7. To complete the installation and activate the device driver, exit from your Windows 3.1x session and reboot the system by pressing **<CTRL> + <ALT> + <DEL>.**

If a CD-ROM, tape drive, scanner, or optical drive is installed on your system, a third party device driver is needed. A driver may be provided by the manufacturer and is used in addition to the Initio ASPI driver to provide proper support for that device. Please refer to your peripheral device manufacturer documentation for additional information.

Device driver command line options

The Initio device driver supports command line switches to optimize driver operation. Device drivers normally, once installed, work effectively. However, in certain situations some driver optimization may be advantageous to system performance. From inside the CONFIG.SYS file for MS-DOS, use the following format when modifying the device driver switches:

The standard format for command line switches is:

<div align="center">Device = C:\INIASPI\ASPI910U.SYS [Driver Config Option]</div>

Driver config options:

/D	Verbose Mode provides detailed information about driver on system command line when driver is initialized.
/L	Driver scan eight LUNs for each SCSI Target.
/Bb,dd	Scan device only on PCI BUS #b, PCI DEVICE #dd The range for "b" is from 0 to 7. The range for "dd" is from 0 to 20.
/Bb	Scan all the devices on the PCI BUS #b The range for "b" is from 0 to 7.
/Sdd	Scan device only on the PCI BUS #0 and device #dd The range for "dd" is from 0 to 20.
/CCBSx	Defines the maximum number of concurrent I/O that driver supports. The range for "x" is from 1 to 16.

[THIS PAGE INTENTIONALLY LEFT BLANK]

Microsoft Windows 95

This Chapter Is About

- **Installing the Initio driver into a new Windows 95 system**

- **Installing the Initio driver into an existing Windows 95 system**

- **Updating Initio device drivers**

Microsoft Windows 95 Driver Installation

Overview

The Initio INI-9100U/9100UW will support Microsoft Windows 95 with the addition of a software driver. The installation procedure described here requires some experience in Windows 95 system setup and administration. The device driver is transferred from the INITIO INI-9100U/9100UW DRIVER DISK 1 to the hard drive where it is automatically initialized during the system boot routine.

The following files are used for installation and will be found on the Initio INI-9100U/9100UW DRIVER DISK 1:

INI910U.MPD   INI-9100U/9100UW SCSI Host Adapter Windows 95 miniport driver.
INI910U.INF   Windows 95 installation information file.

Installation

The INI-9100U/9100UW driver developed for Windows 95 is loaded during the system boot routine and will remain resident on the drive. This is accomplished by following one of the three installation procedures listed:

- New Windows 95 installation.
- Adding the Initio Windows 95 device driver to an existing Windows 95 system.
- Updating INI910U.MPD device driver

Reference Documentation:

- Windows 95 installation and user's guide
- The systems setup and installation guide
- The documentation for system peripherals
- Initio documentation for the SCSI host adapter

The procedures described to make changes to the system have distinct differences. It is strongly suggested that the selected procedure be read and understood before proceeding with the system configuration changes. Please read the instructions carefully.

New Windows 95 installation

These instructions will guide you through the installation of the Initio host adapter driver while installing Windows 95. Windows 95 will be installed from either a CD-ROM or floppy diskettes. It is important that the hardware and DOS 4.01 or higher have been installed successfully before proceeding further. If installing from a SCSI CD-ROM drive, it is important that the Initio ASPI driver, and CD-ROM driver be installed before proceeding further.

1. Access the Windows 95 CD-ROM either from the DOS prompt or from Microsoft Windows 3.x File Manager. Execute the SETUP.EXE program and follow the instructions on your screen. If you are installing from floppy diskette, insert the Windows 95 Setup Disk 1 in your floppy disk drive and boot your system. Follow the instructions on your screen.

2. Once a Windows 95 session is established, use your installed mouse or the appropriate key strokes to select **MY COMPUTER** from the MAIN DESKTOP. Execute the following steps:

- Select **CONTROL PANEL** from within the MY COMPUTER group.

3.   Select **SYSTEM** from within the CONTROL PANEL group,

- Select **DEVICE MANAGER** tab from within the SYSTEM group
- Select the **OTHER DEVICES** category from within the DEVICE MANAGER listing.
- Select the **PCI-SCSI Bus Controller** sub-category from within the OTHER DEVICES listing.
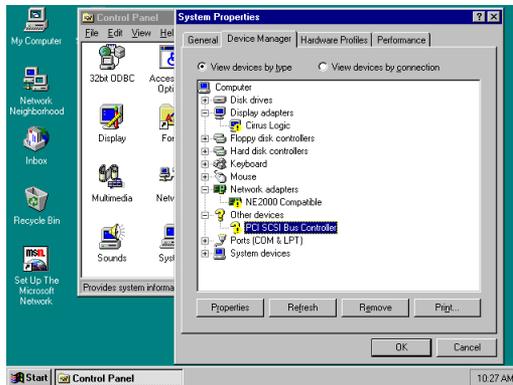
- In the Initio PCI-SCSI Bus Controller Properties window, select the **DRIVER** tab**,** then select **"CHANGE DRIVER..."**.
- In the SELECT HARDWARE TYPE window, select **SCSI CONTROLLERS**.
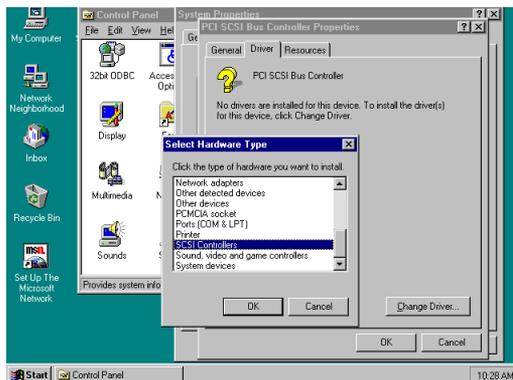
- In the SELECT DEVICE window, select **"HAVE DISK..."**.

6-4

4. In the INSTALL FROM DISK window that is displayed, enter the Initio Driver path name:

    - Insert INITIO INI-9100U/9100UW DRIVER DISK 1 into drive A:
    - Type: **A:\WIN95**, select "**OK**"
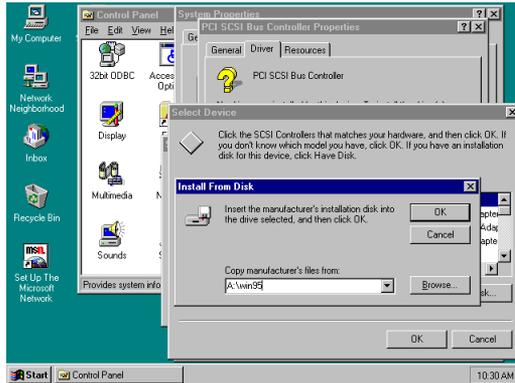
5. Select **INITIO INI-9100U/9100UW Host Adapter**, select **"OK"**, then **"OK"** again to install the INI910U.MPD driver onto your hard disk drive.

6. This completes loading the Host Adapter Driver, follow the on-screen directions to complete the Windows 95 installation. Exit and reboot the system to activate the device driver.

7. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:

    - Select **SYSTEM** from within the CONTROL PANEL group,
    - Select **DEVICE MANAGER** from within the SYSTEM group,
    - Select **SCSI CONTROLLER** from within the DEVICE MANAGER listing, and
    - Select **INITIO INI-9100U/9100UW SCSI HOST ADAPTER** from within the SCSI CONTROLLER listing. If "This device is working properly" is displayed on your screen, the driver has been correctly installed.

Adding the Initio Driver to an existing Windows 95 system

These instructions will guide you through the installation of the Initio host adapter to an existing Windows 95 system. Windows 95 will automatically detect the presence of new hardware in Plug and Play compliant systems. It is important that the Initio INI-9100U/9100UW hardware has been properly installed before proceeding further.

1. Microsoft Windows 95 will detect the presence of new hardware upon boot-up and will display a dialog window titled NEW HARDWARE FOUND and PCI SCSI BUS CONTROLLERS will be highlighted.

    *   Select: **DRIVER FROM DISK PROVIDED BY HARDWARE MANUFACTURER**, then **"OK"**.
    *   Select **SCSI CONTROLLER** from the list of available devices, then select **"HAVE DISK..."**

2. In the INSTALL FROM DISK window that is displayed, enter the Initio Driver path name:

    *   Insert INITIO INI-9100U/9100UW DRIVER DISK 1 into drive A:
    *   Type: **A:\WIN95**, select "**OK"**
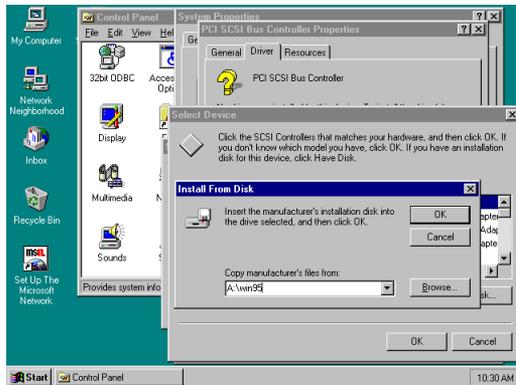
3. Select **INITIO INI-9100U/9100UW Host Adapter**, select **"OK"**, then **"OK"** again to install the INI910U.MPD driver onto your hard disk drive.

4. This completes loading the Host Adapter Driver, follow the on-screen directions to complete the Windows 95 installation. Exit and reboot the system to activate the device driver

5. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:

   - Select **SYSTEM** from within the CONTROL PANEL group,
   - Select **DEVICE MANAGER** from within the SYSTEM group,
   - Select **SCSI CONTROLLER** from within the DEVICE MANAGER listing, and
   - Select **INITIO INI-9100U/9100UW SCSI HOST ADAPTER** from within the SCSI CONTROLLER listing. If "This device is working properly" is displayed on your screen, the driver has been correctly installed.

Updating the Initio device driver

1. Once a Windows 95 session is established, use your installed mouse or the appropriate key strokes to select **MY COMPUTER** from the Main Desktop. Execute the following steps:

   - Select **CONTROL PANEL** from within the MY COMPUTER group.
   - Select **SYSTEM** from within the CONTROL PANEL group.

2. Select the **DEVICE MANAGER** tab from within the SYSTEM group.

   - Select the **SCSI CONTROLLERS** category from within the DEVICE MANAGER listing.
   - Select the **INI-9100U/9100UW SCSI HOST ADAPTER** sub-category from within the SCSI CONTROLLERS listing
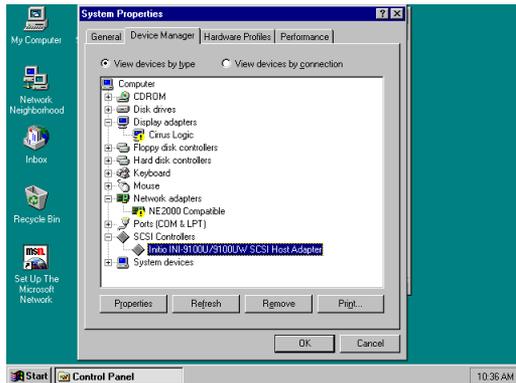
3. In the INI-9100U/9100UW SCSI HOST ADAPTER PROPERTIES window, select the **DRIVER** tab**,** then select **"CHANGE DRIVER..."**.

4. In the SELECT DEVICE window, select **"HAVE DISK..."**.

5. In the INSTALL FROM DISK window that is displayed, enter the Initio Driver path name:

    •   Insert INITIO INI-9100U/9100UW DRIVER DISK 1 into drive A:
    •   Type: **A:\WIN95**, select "**OK"**

6. Select **INITIO INI-9100U/9100UW Host Adapter**,   select **"OK"** to install the INI910U.MPD driver onto your hard disk drive.

6-8

7. This completes updating the Host Adapter Driver. Follow the on-screen directions to restart you computer and activate the new driver.

8. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:

    - Select **SYSTEM** from within the CONTROL PANEL group,
    - Select **DEVICE MANAGER** from within the SYSTEM group,
    - Select **SCSI CONTROLLER** from within the DEVICE MANAGER listing, and
    - Select **INITIO INI-9100U/9100UW SCSI HOST ADAPTER** from within the SCSI CONTROLLER listing. If "This device is working properly" is displayed on your screen, the driver has been correctly installed.

Microsoft Windows-NT

This Chapter Is About

- **Installing the Initio driver into a new Windows NT system**

- **Installing or updating the Initio driver into an existing Windows NT system**

- **Installing a new Windows NT system and Initio driver without floppy disks**

Microsoft Windows-NT Driver Installation

Overview

The Initio INI-9100U/9100UW host adapter will support Windows-NT v3.5x/4.0 with the addition of a software driver. A software driver allows the host computer the ability to transfer data over the SCSI bus. The device driver for Windows-NT is copied from the Initio driver installation diskette to your hard drive where it is loaded onto the computing system during installation.

The following files are used for installation and may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1:

INI910U.SYS	INI-9100U/9100UW SCSI Host Adapter Windows-NT miniport driver.
TXTSETUP.OEM	Script file for installing INI910U.SYS during the text setup phase.
OEMSETUP.INF	Script file for installing INI910U.SYS during the windows phase.

Reference Documentation:

- Windows-NT installation and user's guide
- The systems setup and installation guide
- The documentation for system peripherals
- Initio documentation for the SCSI host adapter

Installation

The INI-9100U/9100UW driver developed for Windows-NT will be installed on the hard drive used for system initialization. The driver is loaded during the system boot routine and will remain resident on the drive. This is accomplished by following one of the four installation procedures listed:

- New Windows-NT installation
- Adding or updating the INI-9100U/9100UW Host Adapter Driver to an existing Windows-NT System

The procedures described to make changes to the system have distinct differences. It is strongly suggested that the selected procedure be read and understood before proceeding with the system configuration changes. Please read the instructions carefully.

NOTICE

The procedures described below will change the system configuration.
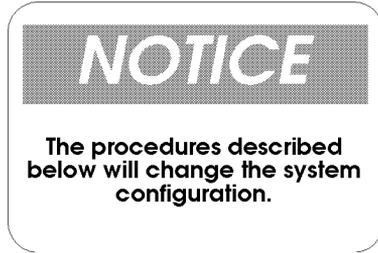
New Windows-NT installation

These instructions will guide you through the installation of the Initio host adapter driver while installing Windows-NT 4.0. Windows-NT will be installed from either floppy diskettes or CD-ROM. The Windows-NT driver will be found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the hardware has been installed successfully before proceeding further.

1. If you are installing Windows-NT from floppy diskettes, locate the Windows-NT Disk 1 for Floppy Installation. Make a backup copy of this diskette before installation.

2. If you are installing Windows-NT from a CD-ROM drive, locate the Windows-NT Setup Disk for CD-ROM Installation. Make a backup copy of this diskette before installation.

3. Insert the backup Windows-NT Setup disk into drive A: and turn on your computer.

4. Follow the instructions on the screen. The following message will be displayed on your screen (see figure 7-1):
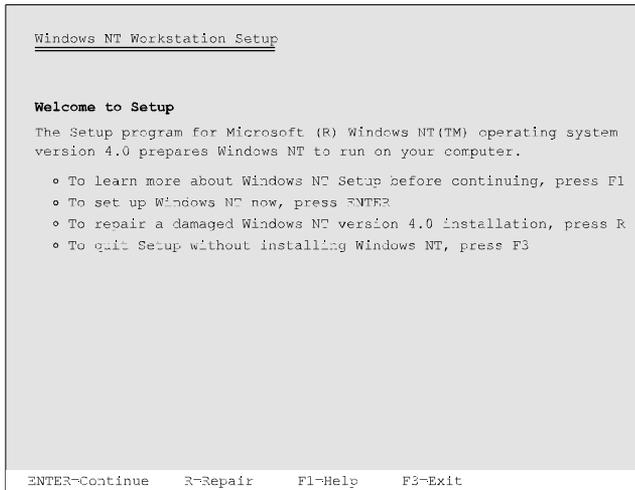
Figure 7-1 Windows-NT Setup

- Press **"ENTER"** to continue setting up Windows NT.
- Select "**S**" to skip mass storage detection.
- Select "**S**" to configure additional SCSI adapters.
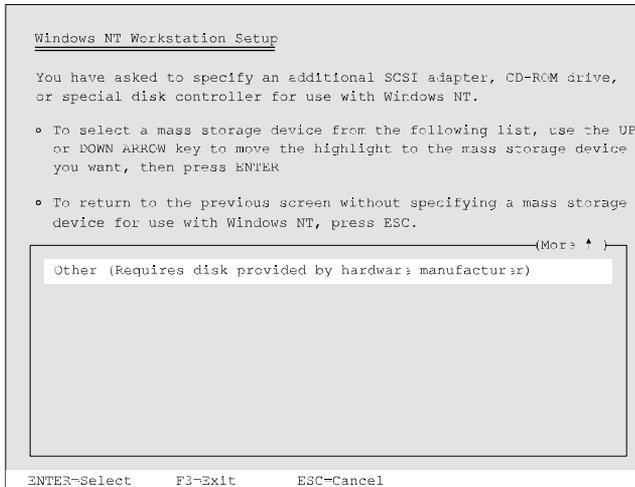
figure 7-2 Select "Other" from list of options

5. Scroll down the list and select "**OTHER (Requires Disk Provided by a Hardware Manufacturer)**", figure 7-2, from the list of

Additional SCSI Adapters. A message will appear on screen stating that:

```
Windows NT Workstation Setup




            Please insert the disk labled
      Manufacturer-supplied hardware support disk
                 into drive A:
              Pres ENTER when ready




 F3=Exit     ENTER=Continue     ESC=Cancel
```
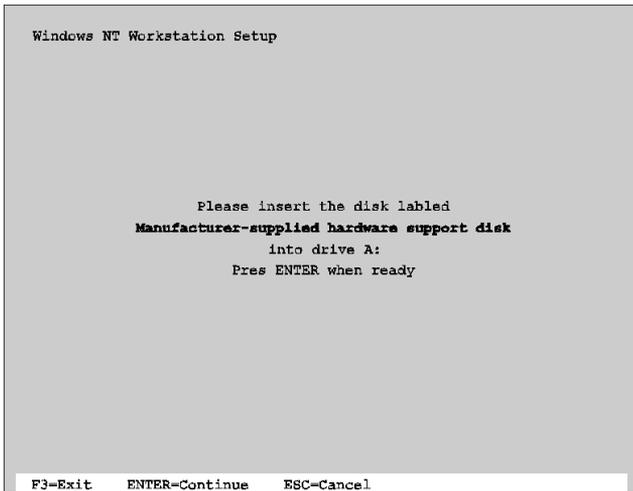
figure 7-3 Insert INITIO INI-9100U/9100UW DRIVER DISK 1

- Remove diskette in drive A and set it aside.
- Insert INITIO INI-9100U/9100UW DRIVER DISK 1 and press **<ENTER>**.
- **Select:** Initio INI-9100U/9100UW SCSI Host Adapter (see figure 7-4)

```
Windows NT Workstation Setup

You have chosen to install a SCSI host adapter, CD-ROM drive, or
special disk controller provided by a hardware manufacturer.

   * To select a mass storage device from the following list
     use the UP or DOWN ARROW key to move the highlight to
     the mass storage device you want, the press ENTER

   * To return to the previous screen without specifying a
     mass storage device for use with Windows NT, press ESC


  ┌─────────────────────────────────────────────────────┐
  │ INITIO INI-9100U/9100UW SCSI Host Adapter           │
  │                                                     │
  │                                                     │
  │                                                     │
  └─────────────────────────────────────────────────────┘


 ENTER=Select   ESC=Cancel
```

7-5

figure 7-4 Select Initio driver

6. The Initio host adapter driver is now installed

7. The on-screen instructions will continue for a complete installation of Windows-NT. Refer to your Windows-NT users manual for completion of the operating system installation procedure.

Adding or updating the Initio driver to an existing Windows-NT system:

For computer systems using other SCSI host adapters or an IDE drive to provide the system boot routine, these instructions will guide you through the INI-9100U/9100UW host adapter driver installation. The Windows-NT driver will be found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the SCSI bus hardware and Windows-NT are installed and configured before proceeding further.

CAUTION

If you have not already done do, backup all files on the computer. Consult your operating system documentation for proper system backup procedures.
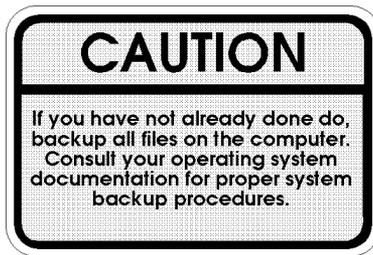
1. Once a Windows NT session is established, use your installed mouse or the appropriate key strokes to select **MY COMPUTER** from the Main Desktop. Execute the following steps:

    - Select **CONTROL PANEL** from within the MY COMPUTER group.
    - Select **SCSI ADAPTERS** from within the CONTROL PANEL group.
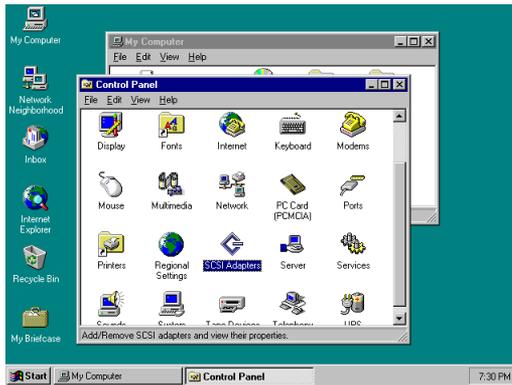
2. Select the **DRIVERS** tab from within the SCSI ADAPTERS group.

    *   In the DRIVERS window, select **"ADD…"**
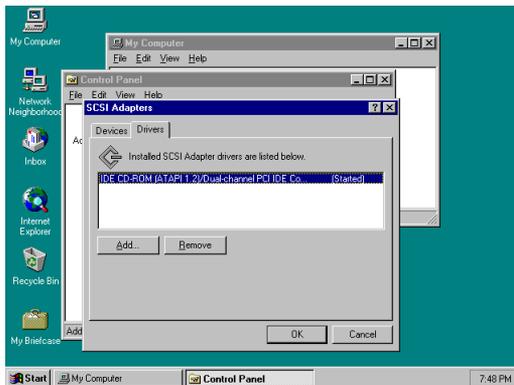
3. In the INSTALL DRIVER window, select **"HAVE DISK..."**.

4. In the INSTALL FROM DISK window that is displayed, enter the Initio Driver path name:

    *   Insert INITIO INI-9100U/9100UW DRIVER DISK 1 into drive A:
    *   Type: **A:\WINNT**, select "**OK"**

7-7
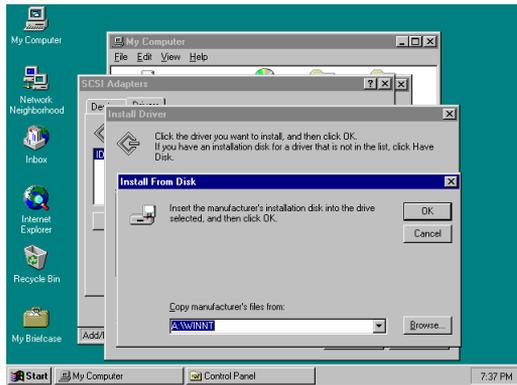
5. Select **INITIO INI-9100U/9100UW Host Adapter**, select **"OK"** to install the INI910U.SYS driver onto your hard disk drive.

6. In the WINDOWS NT SETUP window that is displayed, enter the Initio Driver path name to continue:

   • Type: **A:\WINNT**, select "**CONTINUE"**

7. This completes updating the Host Adapter Driver. Follow the on-screen directions to restart you computer and activate the new driver.

8. It is highly recommended that you verify your Windows NT device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:

   • Select **SCSI ADAPTERS** from within the CONTROL PANEL group,
   • Highlight **INITIO INI-9100U/9100UW SCSI HOST ADAPTER** from within the SCSI ADAPTERS listing, and select **PROPERTIES**. If "This device is working properly" is displayed in the Device Status box, the driver has been correctly installed.

Installing a new Windows NT system and Initio driver without floppy disks

For computer systems installing or upgrading to Windows NT from a floppyless setup such as a share on your network, these instructions will guide you through the INI-9100U/9100UW host adapter driver installation. The Windows-NT driver will be found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the hardware has been installed successfully before proceeding further.

CAUTION

If you have not already done do, backup all files on the computer. Consult your operating system documentation for proper system backup procedures.
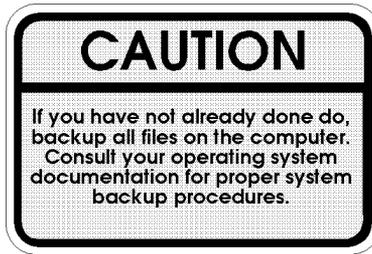
1. Execute a floppyless setup as described by the *Windows NT System Administrator's Guide*.

2. When SETUP begins to load, the screen will turn from black to blue with the text "SETUP IS INSPECTING YOUR COMPUTER'S HARDWARE CONFIGURATION…" at the top.

    *   Press the **F6** key to interrupt this process. You will have two seconds in which to press this key.

    *   Follow the instructions on the screen until you are asked to specify a SCSI driver.

3. Insert the INITIO INI-9100U/9100UW DRIVER DISK 1 into your local floppy disk drive, and press **<ENTER>**.

    *   Select: Initio INI-9100U/9100UW SCSI Host Adapter

4. The Initio host adapter driver is now installed

5. The on-screen instructions will continue for a complete installation of Windows-NT. Refer to your *Windows NT System Administrator's Guide* for completion of the operating system installation procedure.

Novell NetWare

This Chapter Is About

- **Installing the Initio driver in A new NetWare system**

- **Installing the driver in an existing NetWare system**

- **Device driver command line options**

Novell NetWare Driver Installation

Overview

The Initio INI-9100U/9100UW will support Novell NetWare 386 V4.XX or V3.1X with the addition of a software driver. The installation procedure described here requires some experience in Novell system setup and administration. The device driver is transferred from the INITIO INI-9100U/9100UW DRIVER DISK 1 to the hard drive where it is automatically initialized during the system boot routine. The device drivers listed can support NetWare versions described after the Initio file name:

\NETWARE\V31X\INI910U.DSK	Initio Novell adapter driver for V3.1X
\NETWARE\V31X\ASPITRAN.DSK	ASPI transport layer driver for V3.1X
\NETWARE\V4X\INI910U.DSK	Initio Novell adapter driver for V4.X or later
\NETWARE\V4X\INI910U.DDI	Device driver installation file
\NETWARE\V4X\ASPITRAN.DSK	ASPI transport layer driver for V4.X or later
\NETWARE\HAM\INI9100.HAM	HAM device driver
\NETWARE\HAM\INI9100.DDI	HAM device driver installation file

Reference Documentation:

- Novell NetWare installation and user's guide
- The systems setup and installation guide
- The documentation for system peripherals
- Initio documentation for the SCSI host adapter

System Requirement:
- Installed primary floppy diskette drive.
- Installed MS-DOS/ASPI driver on resident hard drive.
- Installed and configured CD-ROM drive (driver provided by Corel).

Installation

The drivers developed by Initio for NetWare will be installed on the disk drive used for NetWare system initialization. It is strongly recommended that the selected procedure be read and understood before continuing with the system configuration or change. Please read the instructions carefully.

NOTICE

The procedures described below will change the system configuration.
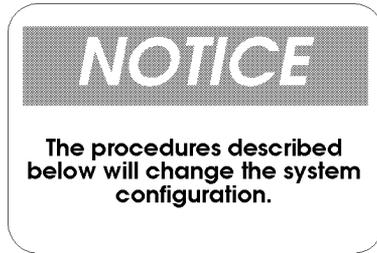
New NetWare 4.xx installation

Drivers for the Initio host adapter may be found on the INITIO INI-9100U/9100UW DRIVER DISK 1. In most cases you will load the drivers during a new installation of NetWare from CD-ROM. The driver is loaded during the NetWare Server Installation procedure. The NetWare installation program will prompt you for the required parameters as the installation procedure progresses. It is highly recommended that you have a copy of the Novell Netware Installation and Upgrade Manual for reference.

1. At the MS-DOS prompt for CD-ROM installation, change directories to where the installation files are located.

   e.g., **d:\netware4.0\english\ <ENTER>**

2. Type **INSTALL <ENTER>** to initialize the installation routine. A screen similar to the following will be displayed (see figure 8-1).

```
Novell Server Installation v4.01            NetWare Loadable Module



              ┌─────────────────────────────────────────┐
              │      Select an Installation Method       │
              │ ┌─────────────────────────────────────┐  │
              │ │ Install a new v4.x server           │  │
              │ │ Display Information (README) File    │  │
              │ │                                      │  │
              │ │                                      │  │
              │ │                                      │  │
              │ │                                      │  │
              │ └─────────────────────────────────────┘  │
              └─────────────────────────────────────────┘




Select an installation method <Enter>
Help <F1>                                    Abort INSTALL <ALT><F10>
```
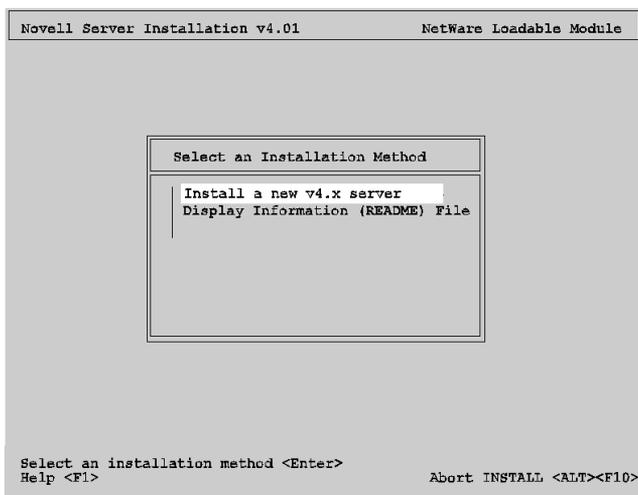
figure 8-1 Novell 4.x Installation

4. Select **Install new NetWare v4.x** from the window by using the UP or
    DOWN ARROW key to move the highlight to the option you want,
    press **<ENTER>**.

5. Follow the instructions in the NetWare User's Manual for partitioning
    the hard drives and naming the system.

6. Follow the directions on screen until you come to a window titled:
    Load Disk Driver.

    • Press the **<Ins>** key to insert a new device driver.
    • Press the **<F3>** key to specify a different source drive/directory
      (figure 8-2).

```
Novell Server Installation v4.x          NetWare Loadable Module

            Installation Options
             Select a disk driver
ASPICD.DSK    Adaptec CD-ROM (ASPI Compatible) Driver
ASPITRAN.DSK  INITIO NetWare 386 Transport Layer Driver
CDNASPI.DSK   Meridian Data NetWare 386 CD-ROM Device Driver

             Specify a directory path:
     Use the  A:\netware\v4x              aded Drivers
     device
     CD-ROM device with NetWare

     The default option will correct for

Continue                        <Enter>
Specify a different drive/directory  <F3>
Help <F1>    Previous Screen <Esc>        Abort INSTALL <ALT><F10>
```

figure 8-2 Specify Initio Driver Path

7. In the new window that is displayed enter the Initio Driver path name:

   - Insert INITIO INI-9100U/9100UW DRIVER DISK 1 into drive A:
   - Type: **A:\netware\v4x**   Press **<ENTER>**

8. In the window "Select a New Disk Driver to Install:" a list of available Initio drivers for NetWare and their version numbers will be displayed.

   - Select **ini910U.DSK** by using the UP or DOWN ARROW key to move the highlight, press **<ENTER>**.
   - System will ask for confirmation to load new driver, press **<ENTER>**
   - Press **<ENTER>** to continue

8-5

```
Novell Server Installation v4.x            NetWare Loadable Module


               Select a new disk driver to install:

 ASPITRAN.DSK INITIO NetWare 386 ASPI Transport Layer
 INI910U.DSK  INITIO INI-9100U/9100UW Disk Device Driver for NetWare 4.x




     Product Options   (Install/Reconfigure Products)
     Other Options     (Other Optional Installa  Loaded Drivers

                                                 INI910U




 Select multiple disk driver  <F5>
 Load a driver listed         <Enter>
 Unload a driver              <Del>
 Scroll help window           <F7>(up)<F8>(Dn)   Change Lists <F2>
 Help <F1>    Previous Screen <Esc>              Abort Install <Alt><F10>
```

figure 8-3 Select the Initio Driver

9. Once you have selected the driver, the Loaded Drivers Window below
    the list of Available Drivers will be updated with the Initio driver
    name you have selected. To continue with installation press
    <ENTER>.

10. This completes loading the Host Adapter Driver, Follow the on-screen
    directions to complete the Novell NetWare installation.

Adding the Initio driver to an existing NetWare system

CAUTION

If you have not already done do, backup all files on the computer. Consult your operating system documentation for proper system backup procedures.

1. To begin the installation you will need to change the directory to the location of the server and initialize the network server, e.g.,

   - Type **CD \ NWSERVER <ENTER>**
   - Type **SERVER <ENTER>**

2. At the NetWare prompt, Type **LOAD INSTALL <ENTER>.** A screen similar to the following will be displayed (see figure 8-4).

```
Novell Server Installation v4.01            NetWare Loadable Module




            Select an Installation Method

           Install a new v4.x server
           Upgrade a v3.1x or v4.x server
          Maintenance/Selective Install








Select an installation method <Enter>
Help <F1>                                  Abort INSTALL <ALT><F10>
```
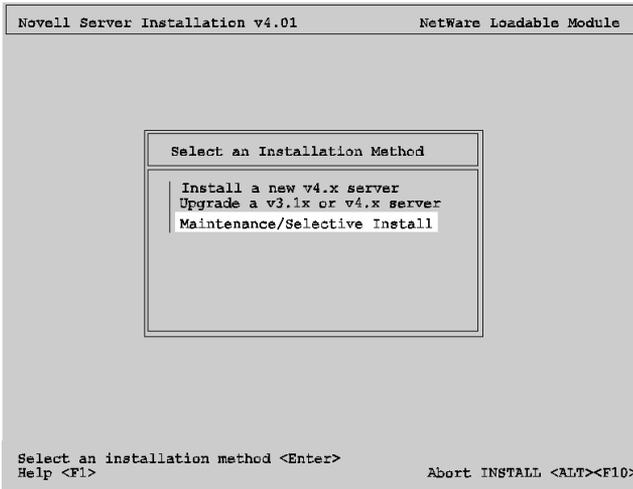
figure 8-4 Novell Installation Screen

3. Select **Maintenance/Selective Install** from the window by highlighting it using the UP or DOWN ARROW keys, press **<ENTER>**

   - Select **Disk Driver Options (Configure/Load/Unload Disk Drivers)** from the window by highlighting it using the UP or DOWN ARROW keys, press **<ENTER>**

4. Follow the directions on screen until you come to a window titled Select A Disk Driver.

   - Press the **<Ins>** key to insert a new driver.
   - Press the **<F3>** key to specify a different source drive/directory.

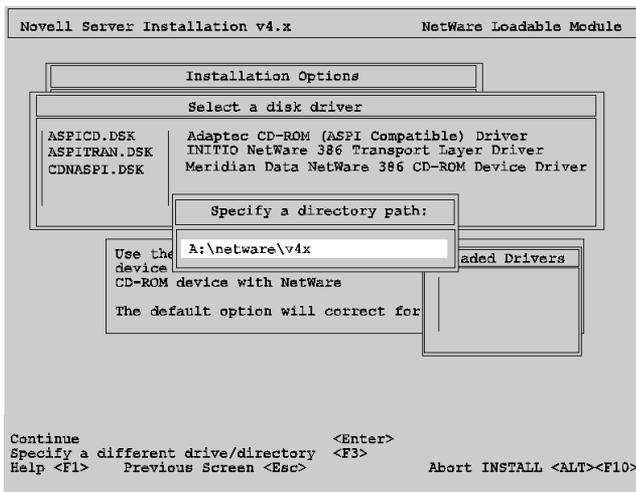5. In the new window that is displayed enter the Initio Driver path name:

   - Insert **INITIO INI-9100U/9100UW DRIVER DISK 1** into drive A:
   - Type: **A:\netware\v4x**   Press <**ENTER>**

6. In the window Select A New Disk Driver To Install: a list of available Initio drivers for NetWare and the version number will be displayed.

   - Select **ini910U.DSK**, press **<ENTER>**
   - Press **<ENTER>** to confirm, then press **<ENTER>** to continue

7. Once you have selected the driver, the Loaded Drivers window below the list of Available Drivers will be updated with the driver name you selected.

   - To complete the driver loading press **<ENTER>**

8. This completes loading the Host Adapter Driver, follow the directions on screen to complete the NetWare installation.

Device driver command line options

The Initio device drivers support command line switches to optimize driver performance. Device drivers normally, once installed, require no further

information to work effectively; however, in certain situations some driver optimization may be advantageous to system performance.

NetWare offers two means of entering command line switches. One method is for session usage and needs to be entered each time the system is rebooted.

:Load (Pathname) ini910u [Driver Config Option]

The second method listed is for permanent installation. In startup.ncf you can include the following statement.

Load (Pathname) ini910u [Driver Config Option]

Driver Config Options:

/V	Verbose Mode provides detail information about driver on system command line when driver is initialized.
/!V	Non Verbose Mode (default)
/L	Driver assumes that all targets have more than one LUN
/!L	Driver assumes that all targets only have LUN 0 (default)
/T:xxxx	Target enable mask WORD (Default scan all targets)
/B:b,dd	Scan device only on PCI BUS #b, PCI DEVICE #dd
/B:b	Scan all the devices on PCI BUS #b (from 0 to 7)
/Q:q	Specifies maximum number of tag commands per target (default 4)
/!Q	No tag
/WR	Read after write, hardware verify
/!WR	Not verified (default)
/R	Support removable media (default)
/!R	Will not support removable media
/D	Enable support for fixed disk drive (default)
/!D	Disable support for fixed disk drive

[THIS PAGE INTENTIONALLY LEFT BLANK]

IBM OS/2

<u>**This Chapter Is About**</u>

- **Installing the Initio driver in a new OS/2 installation**

- **Adding the Initio driver to an existing OS/2 system**

- **Device driver command line options**

IBM OS/2 Driver Installation

Overview

The Initio INI-9100U/9100UW OS/2 driver will support OS/2, 3.0 & 4.0. The device driver for OS/2 is copied from the INITIO INI-9100U/9100UW DRIVER DISK 1 to your hard drive where it is initialized during boot-up.

The installation of Initio device drivers to support OS/2 include the following software files and may be found on the INITIO INI-9100U/9100UW DRIVER INSTALLATION DISK 1:

\OS2\INI910U. ADD	INI-9100U/9100UW SCSI Host Adapter OS/2 driver.
\OS2\INI910U.DDP	Script file for installing INI910U.ADD

Reference Documentation:

- OS/2 installation and user's guide
- The systems setup and installation guide
- The documentation for system peripherals
- Initio documentation for the SCSI host adapter

Installation

The INI-9100U/9100UW driver developed for OS/2 will be installed on the disk drive used for system initialization. The driver is loaded during the system boot routine and will remain resident on the drive. Installation of the drivers can be accomplished by following one of the procedures listed:

- New OS/2 Installation
- Adding INI-9100U/9100UW host adapter to existing OS/2

The steps used to install the Initio drivers have different system requirements that may affect basic operation if not installed properly. It is strongly suggested

that the selected procedure be read and understood before proceeding. Please read all instructions carefully.

NOTICE
The procedures described below will change the system configuration.
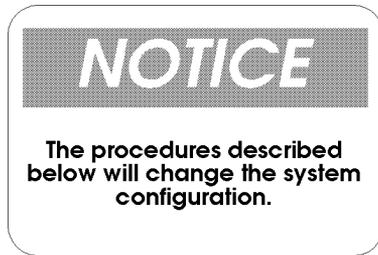
New OS/2 installation:

These instructions will guide you through the Initio OS/2 device driver and OS/2 installation at the same time. The program can be installed from floppy diskettes or from CD-ROM. The OS/2 driver for the INI-9100U/9100UW will be found on the INITIO INI-9100U/9100UW DRIVER INSTALLATION DISK 1. It is important that the INI-9100U/9100UW hardware has been installed successfully before proceeding further.

1. Make a duplicate copy of **OS/2 Diskette 1** using a blank diskette and label it as "OS/2 Diskette 1 for INI-9100U/9100UW".

2. Copy the **INI910U.ADD** file from the **INITIO INI-9100U/9100UW DRIVER DISK 1** (OS/2 subdirectory) to the root directory on the "OS/2 diskette 1 for INI-9100U/9100UW".

3. Using an appropriate text editor modify the CONFIG.SYS on the OS/2 Diskette 1 for INI-9100U/9100UW to include the new Initio driver (see figure 9-1).

   - Enter: **BASEDEV=INI910U.ADD** and save the file.
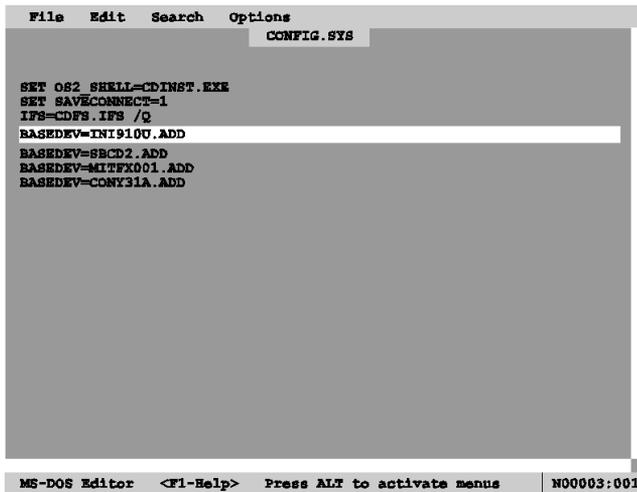
```
   File   Edit   Search   Options
                          CONFIG.SYS


SET OS2_SHELL=CDINST.EXE
SET SAVECONNECT=1
IFS=CDFS.IFS /Q
BASEDEV=INI910U.ADD
BASEDEV=SBCD2.ADD
BASEDEV=MITFX001.ADD
BASEDEV=CONY31A.ADD
```

```
 MS-DOS Editor   <F1-Help>   Press ALT to activate menus   N00003:001
```

figure 9-1 Edit CONFIG.SYS file

4. Insert the **Installation Diskette** into drive A: and turn on your computer. This will begin the OS/2 installation and establish an OS/2 bootable hard drive.

5. When prompted, insert the "OS/2 Diskette 1 for INI-9100U/9100UW." Follow the on-screen instructions to continue.

6. You have completed the Initio device driver installation for OS/2. Follow the on-screen instructions and OS/2 manual for a complete description of OS/2 installation.

Adding the Initio driver to an existing OS/2 system

For computer systems using other SCSI host adapters or an IDE device to provide the system boot routines, these instructions will guide you through INI-9100U/9100UW host adapter driver installation. The OS/2 driver will be found on the INITIO INI-9100U/9100UW DRIVER DISK 1. It is important that the SCSI bus hardware and OS/2 are installed correctly before proceeding further.

.
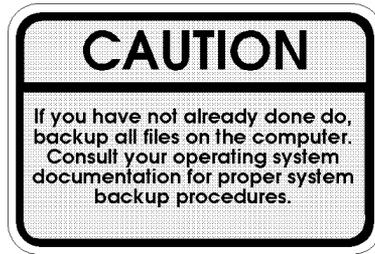
1. Once an OS/2 session is established, insert INITIO INI-9100U/9100UW DRIVER DISK 1 into your floppy drive.

2. By using your installed mouse, or by using the appropriate key strokes, select **DEVICE DRIVER INSTALL** from the SYSTEM SETUP group.
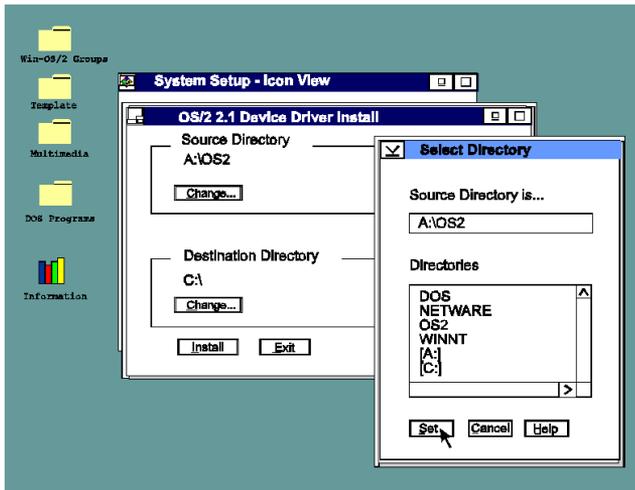
figure 9-2 Add OS/2 Device Driver

3. Select **CHANGE** source directory to read as the root directory.

4. Select **OS2** and select **SET.**

5. Select **DESTINATION DIRECTORY**.

6. Select **CHANGE** destination directory to any existing OS/2 directory or accept the default.

7. Select **SET.**

8. From the DEVICE DRIVER INSTALLATION GROUP select **INSTALL**.
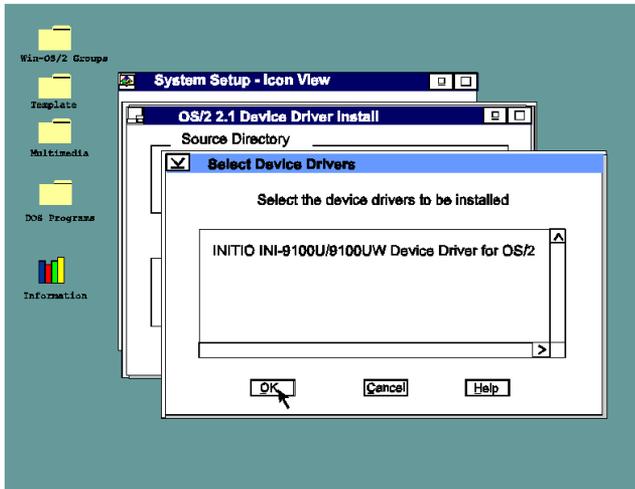
figure 9-3 Select OS/2 Driver

9. Select **INITIO INI-9100U/9100UW Device Driver for OS/2** select **"OK"**.

10. Select **EXIT** to install the OS/2 device driver. Exit and reboot the system to activate the device driver.

Device driver command line options

The Initio device drivers support command line switches to optimize driver performance. Device drivers normally require no further information to work effectively. However, in certain situations some driver optimization may be advantageous to system performance. From inside the CONFIG.SYS file use the following format to edit the file.

The standard format for command line switches is:

<div align="center">BASEDEV = INI910U.ADD [Driver Config Option]</div>

Driver Config Options:

/V	Verbose Mode provides detail information about driver on system command line when driver is initialized.
/!V	Non Verbose Mode (default)
/ET	Driver assumes that all targets have more than one LUN
/!ET	Driver assumes that all targets only have LUN 0 (default)
/T:hhhh	Target enable mask WORD (Default scan all targets) in hex format
/B:b,dd	Scan device only on PCI BUS #b, DEVICE #dd (in decimal format)
/B:b	Scan all the devices on PCI BUS #b (from 0 to 7)
/A:n	Assigns adapter number based on BIOS address
/DM:t,t,t	Enable direct access storage device (DASD) support
/!DM:t,t,t	Disable DASD manager support
/SM:t,t,t	Enable SCSI manager support
/!SM:t,t,t	Disable SCSI manager support
/Q:q	Specifies maximum number of tag commands per target
/!Q	No tag

[THIS PAGE INTENTIONALLY LEFT BLANK]

SCO UNIX

This Chapter Is About

- **Setting interrupts**

- **Installing the Initio driver in a new SCO UNIX installation**

- **Adding the Initio driver to an existing SCO UNIX system**

- **Changing to INI-9100U/9100UW as the bootable host adapter**

SCO UNIX Driver Installation

Overview

The Initio SCO UNIX device driver will support SCO UNIX System V/386 Release 3.2v4.0 or later, SCO Open Desktop v2.0, v3.0 or later, and SCO Open Server Release 3.0 and 5.0. The device driver is transferred from the floppy diskette to the hard drive where it's loaded during system initialization.

The installation of Initio device drivers to support SCO UNIX include the following software files and may be found on the INITIO INI-9100U/9100UW DRIVER DISK 2.

   Driver.o   Device driver object file
   Space.c   Device driver definition file

Reference Documentation:

- SCO UNIX documentation, installation and user's guide
- The systems setup and installation guide
- The documentation for system peripherals
- Initio documentation for the SCSI host adapter

Installation

The SCO UNIX drivers developed by Initio will be installed on the disk drive used for system initialization. It is strongly suggested that the selected procedure be read and understood before continuing with the system configuration or change. Please read the instructions carefully.

NOTICE

The procedures described below will change the system configuration.
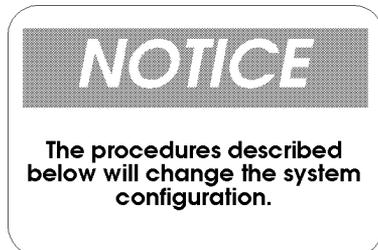
Updating interrupts and hardware settings

The following interrupt configuration settings are suggested as the most effective means of providing a controller interrupt to the host adapter:

- Host Adapter interrupt levels available are 9,11, 15, (IRQ 11 is recommended)
- Avoid using interrupt 10 as the controller interrupt.
- Set first SCSI disk ID to 0 (first time install requirement)
- Set tape target ID to 2. (If tape is in use)
- Set CD-ROM target ID to 5. (If CD-ROM is in use)

Please Refer to your system documentation to set the interrupt levels and your peripheral documentation for help in setting SCSI IDs.

Installing the Initio driver in a new SCO UNIX system

1. Insert the SCO UNIX N1 boot disk into the floppy drive and turn on the system. A screen similar to the following will be displayed (see figure 10-1):

```
                    Award Software, Inc.
                    System Configuration

CPU Type      : 80486 - DX        Base Memory    : 640K
Co-Processor : Installed          Extended Memory: 15368K
CPU Clock     : 66 MHz            Cache Size     : 256K

Diskette Drive A  : 1.44M,3.5 in  Display Type      : EGA/VGA
Diskette Drive B  : None          Serial Port(s)    : 3F8,2F8
Hard Disk Drive C : None          Parallel Port(s)  : 378
Hard Disk Drive D : None
Hard Disk Drive E : None
Hard Disk Drive F : None




SCO Unix System V/386 on i80486
boot
:
```

figure 10-1 SCO UNIX system boot screen

2. Type: **link < ENTER >**. The system will respond by displaying the following screen (see figure 10-2):

```
                    Award Software, Inc.
                    System Configuration

CPU Type     : 80486 - DX       Base Memory    : 640K
Co-Processor : Installed         Extended Memory: 15368K
CPU Clock    : 66 MHz            Cache Size     : 256K

Diskette Drive A  : 1.44M,3.5 in   Display Type     : EGA/VGA
Diskette Drive B  : None           Serial Port(s)   : 3F8,2F8
Hard Disk Drive C : None           Parallel Port(s) : 378
Hard Disk Drive D : None
Hard Disk Drive E : None
Hard Disk Drive F : None



SCO Unix System V/386 on i80486
boot
: link

What packages do you need linked in the system,
or 'q' to quit?:
```

figure 10-2 Linking a package in SCO UNIX

3. Type: **i91u < ENTER >**. The system at this point will boot into SCO
    UNIX. Please refer to the SCO UNIX documentation for additional
    information. When prompted by the following screen (see figure 10-
    3), insert the INITIO INI-9100U/9100UW DRIVER DISK 2 diskette
    into your floppy drive; Press **< ENTER >**

```
d=fd(160)

Memory sizing

Memory found: 0K-640K, 1m-16m

Loading kernel fd(64)unix  .text
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
........
Loading kernel fd(64)unix  .data
.................................................................
........
Loading kernel fd(64) unix  .bss



Please insert the fd(60)i91u volume and press <RETURN>
or 'q' to quit:
```

figure 10-3 Insert Initio INI-9100U/9100UW Driver Disk 2

4. Please refer to the SCO UNIX documentation for additional information. You have completed the installation of the SCO UNIX driver.

Adding the Initio driver to an existing SCO UNIX system

CAUTION

If you have not already done do, backup all files on the computer. Consult your operating system documentation for proper system backup procedures.
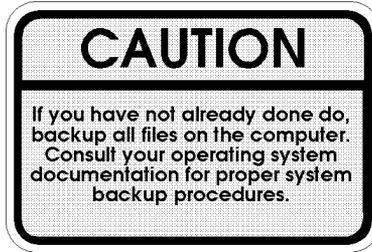
1. Insert the **INITIO INI-9100U/9100UW DRIVER DISK 2** diskette into your floppy drive.

2. Type: "**installpkg**" under the command prompt, <**ENTER**>

3. The following system screen will be displayed (figure 10-5):

```
Installation in progress -- do not remove the floppy disk

The following packages are on this disk:


  NAME      DESCRIPTION
  i91u      Initio INI-9100U/9100UW Device Driver for SCO UNIX system


Please enter the names of the packages you
wish to install, or q to quit:
```

figure 10-5 SCO UNIX install package

- Type: **i91u < ENTER >**

4. Change the directory and rebuild the UNIX kernel:

- **cd /etc/conf/cf.d**   **< ENTER >**
- **. /link_unix**   **< ENTER >**

5. You have completed the link procedure for the Initio device driver. Exit and reboot the system.

6. For further information regarding removing the Initio driver for SCO Unix, please refer to Appendix A, Troubleshooting in this *User's Manual*

Changing to the INI-9100U/9100UW as the bootable host adapter:
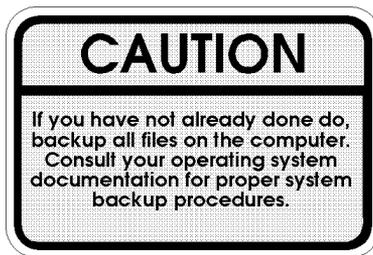
1. Insert the **INITIO INI-9100U/9100UW DRIVER INSTALLATION DISK 2** diskette into floppy drive.

2. Type: "**installpkg**" under command prompt and press <**ENTER**>, A system screen similar to that of figure 10-5 will be shown

- Type: **i91u <ENTER>**

3. Change the mscsi file:

- **cd /etc/conf/cf.d < ENTER >**
- **cp mscsi mscsi.bak   < ENTER >**
- **vi mscsi < ENTER >**

In the example below, The XXXX would be replaced with **i91u**.

ha	attach	number	ID	lun
XXXX	Stp	0	2	0
XXXX	Sdsk	0	0	0
XXXX	Srom	0	5	0

5. Rebuild the UNIX kernel:

    - **. /link_unix < ENTER >**

6. You have completed the link procedure for the Initio device driver. Exit and reboot the system.

7. For further information regarding removing the Initio driver for SCO Unix, please refer to Appendix A, Troubleshooting in this *User's Manual*

[THIS PAGE INTENTIONALLY LEFT BLANK]

SCO UnixWare

<u>**This Chapter Is About**</u>

- **Installing the Initio driver in a new UnixWare installation**

- **Adding the Initio driver to an existing UnixWare system**

- **Using multiple host adapters in UnixWare**

- **Removing the Initio driver from a UnixWare system**

SCO UnixWare Driver Installation

Overview

The Initio SCO UnixWare device driver will support UnixWare 2.x. The device driver is transferred from the floppy diskette to the hard drive where it is loaded during system initialization.

The installation of Initio device drivers to support SCO UnixWare may be found on the INITIO INI-9100U/9100UW DRIVER DISK 2.

Reference Documentation:
- SCO UnixWare Installation Handbook.
- SCO UnixWare System Owner Handbook

Installation

The SCO UnixWare drivers developed by Initio will be installed on the disk drive used for system initialization. It is strongly suggested that the selected procedure be read and understood before continuing with the system configuration or change. Please read the instructions carefully.

NOTICE

The procedures described below will change the system configuration.
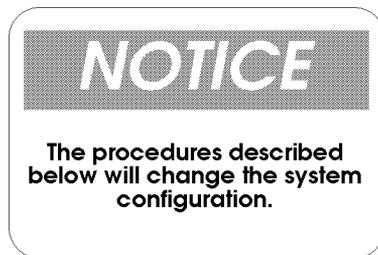
Updating interrupts and hardware settings

The following interrupt configuration settings are suggested as the most effective means of providing a controller interrupt to the host adapter:

- Host adapter interrupt level must be set to IRQ 10 for proper installation of the Initio driver.

Please refer to your system documentation to set the interrupt levels and your peripheral documentation for help in setting SCSI IDs.

Installing the Initio driver in a new UnixWare system

Drivers for the Initio host adapter may be found on the INITIO INI-9100U/9100UW DRIVER DISK 2. In most cases you will load the drivers during a new installation of UnixWare from CD-ROM. The driver is loaded during the early stages of the installation procedure. The UnixWare installation program will prompt you for the required parameters as the installation procedure progresses. It is highly recommended that you have a copy of the SCO UnixWare Installation Handbook and SCO UnixWare System Owner Handbook for reference.

1. Insert the "SCO UNIXWARE INSTALLATION DISKETTE" into the floppy drive and turn on the computer. A screen similar to the following will be displayed (see figure 11-1).


```
                    UnixWare Application Server 2.01 Installation


        Welcome to UnixWare Application Server 2.01 Installation!

        To install UnixWare 2.01 you will be asked several
        questions.  Where possible, default values are provided.

        When you reach the Install Menu, you can review
        and change any settings or cancel the installation.

        No permanent changes are made to the system until you select
        "Accept All Settings and Install Now" from the Install Menu.

        Please refer to the bottom of each screen for instructions;
        most screens also allow you to press the F1 key for help.

        See the UnixWare Installation Handbook for more information.



                            Press ENTER to Continue
```
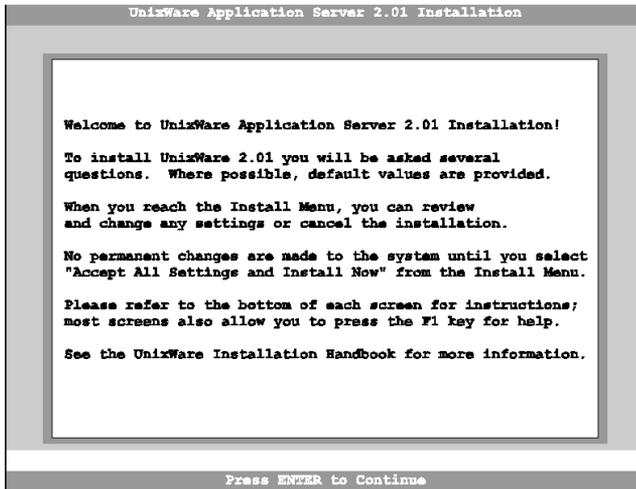
figure 11-1UnixWare Installation

2. When prompted to **INSTALL HOST BUS ADAPTER DRIVERS** (see figure 11-2), insert the "INITIO INI-9100U/9100UW DRIVER DISK 2" into drive A: press **<Enter>**.

```
        UnixWare Application Server 2.01 Installation




   UnixWare 2.01 includes a diskette labled "Host Bus Adapter Drivers."  This
   diskette contains common device drivers for popular Host Bus Adapters (HBA)
   and other devices.  Hardware vendors may provide additional HBA diskettes.
   If this is the case, please check the instructions that came with the other
   HBA diskette(s) to determine the order in which you must insert the disk-
   ettes.  See the UnixWare Installation Handbook for more information.

   If HBA diskette(s) are needed, or if you are not sure:
      1. Remove the Install Diskette from the drive.
      2. Insert the first HBA diskette and press ENTER.

   If you are not sure that your system does not need any HBA diskettes
      1. Remove the Install Diskette from the drive.
      2. Select "Continue Installation" and press ENTER.


                              Choices

            (*) Install Host Bus Adapter Driver
            ( ) Continue Installation



        Use up/down arrow keys and ENTER to select, F1=Help
```
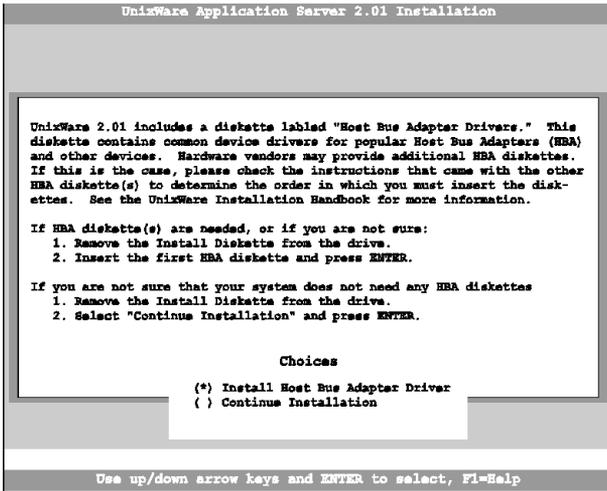
figure 11-2 Install Host Bus Adapter Drivers

3. When prompted to **INSTALL ANOTHER HBA DISKETTE** (see figure 11-3), press **<ENTER>** to continue.

```
          UnixWare Application Server 2.01 Installation



        If you have additional HBA diskettes:
           1. Insert the next HBA diskette and press ENTER

        If you do not need to use additional HBA diskettes:
           1. Remove the Install Diskette from the drive.
           2. Select "Continue Installation" and press ENTER.




                                Choices

                     (*) Install Another HBA Diskettes
                     ( ) Continue Installation



          Use up/down arrow keys and ENTER to select, F1=Help
```
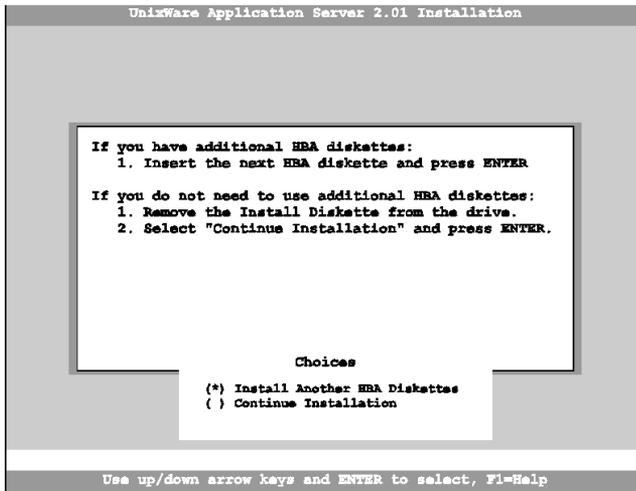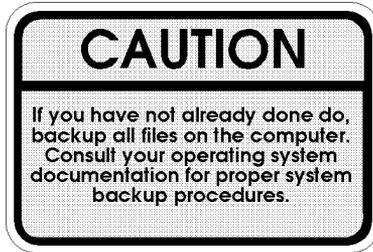
figure 11-3 Install another HBA Diskette

4. Follow the directions on screen until you come to a window titled: Loading
    Initio INI-9100U/9100UW Host Adapter.

    - Select **CONTINUE INSTALLATION.**
    - Select **CONTINUE INSTALLATION** again.

5. This completes loading the host adapter driver. Follow the on-screen
    directions to complete the SCO UnixWare installation. For further
    information regarding UnixWare installation, refer to the SCO UnixWare
    Installation Handbook.

Adding the Initio driver to an existing UnixWare system

CAUTION

If you have not already done do, backup all files on the computer. Consult your operating system documentation for proper system backup procedures.

1. Once a UnixWare session is established and a command prompt is ready, type (recall that UnixWare is case sensitive):
   - **cp /stand/unix   /stand/unix.org** , press **<ENTER>**
   - **pkgadd -d diskette1** , press **<ENTER>**

2. Select **i910u ihv hba** from the list of available host drivers, press **<ENTER>**.

3. If the INI-9100U/9100UW is intended to be the bootable host adapter, the next step to updating the driver will require a revision to the **I910u** file. These instructions will guide you through changing the current software settings for UnixWare to establish the INI-9100U/9100UW as the host adapter for your boot device:

   - At the system command prompt, type
     - **cd /etc/conf/sdevice.d**
     - Use "vi" or another editor to modify the file **I910u** by adding a line
       - locate the line **$version2**
       - edit the file by adding the line **$static** immediately following $version2.
   - Rebuild the UnixWare kernel by completing the following steps at the command prompt :
     - **/etc/conf/bin/idbuild -B <ENTER>**
     - **cp /etc/conf/cf.d/unix   /stand/unix <ENTER>**
     - **cd / <ENTER>**
     - **shutdown -g0** (0 is Zero) **<ENTER>**
     - **Y <ENTER>**

4. If the INI-9100U/9100UW is **NOT** intended to be the bootable host adapter, these instructions will guide you through changing the current software settings for UnixWare to establish the INI-9100U/9100UW as a non-bootable host adapter for your device:

- At the system command prompt, type
  - **/etc/conf/bin/idbuild -M i910u <ENTER>**
  - **cd / <ENTER>**
  - **shutdown -g0** (0 is Zero) **<ENTER>**
  - **Y <ENTER>**

5. Exit the UnixWare program and reboot your system to initialize the new device driver to control INI-9100U/9100UW.
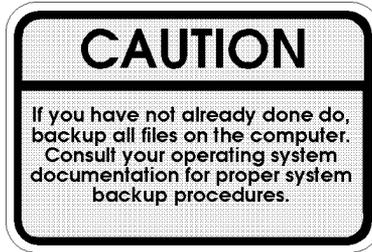
Using multiple Host Adapters

UnixWare is capable of supporting up to eight SCSI busses. If you choose to use multiple host adapters in your system, verify that each host adapter shared interrupt level is set to IRQ10. Please refer to your system documentation to set the interrupt levels.

Space for each INI-9100U/9100UW host adapter in the system is configured and allocated by a separate line in the file **/ETC/CONF/SDEVICE.D/I910U**.

1. Verify that **Y** is selected in the second field at the line starting at **I910u** in the file **/ETC/CONF/SDEVICE.D/I910U** for each INI-9100U/9100UW in the system.

UnixWare will automatically rebuild the kernel when an additional INI-9100U/9100UW is detected.

Removing the Initio driver from a UnixWare system

```
CAUTION
If you have not already done do,
backup all files on the computer.
Consult your operating system
documentation for proper system
backup procedures.
```

1. Once a UnixWare session is established and a command prompt is ready, type (recall that UnixWare is case sensitive):

    - Type: **/etc/conf/bin/idinstall -d i910u <ENTER>**   to delete the following files:

            /etc/conf/mdevice.d/i910u
            /etc/conf/sdevice.d/i910u
            /etc/conf/pack.d/i910u/driver.o
            /etc/conf/pack.d/i910u/space.c
            /etc/conf/pack.d/i910u/disk.cfg

2. Then rebuild the UnixWare kernel by executing the following commands at the system prompt:

    - **/etc/conf/bin/idbiuld -B -K <ENTER>**
    - **/cp /etc/conf/cf.d/unix /stand/unix <ENTER>**
    - **cd/ <ENTER>**
    - **shutdown -g0 (where 0 is Zero) <ENTER>**
    - **Y <ENTER>**

Appendix

This Chapter Is About

- **Troubleshooting**
- **DOS Space > 1 Gigabyte**
- **Warranty**

A: Troubleshooting

In the following section you will find commonly asked questions and answers to problems encountered during the installation of the INI-9100U/9100UW.

Question: Why isn't the INI-9100U/9100UW banner "!!! Press <CRTL><I> for SmartSCSI Setup Utility !!!" displayed when I power up the host system?

> **Answer:** Verify that all cabling to the host adapter is installed correctly, refer to the hardware installation section of this manual.

Question: On boot-up the message "SCSI BIOS Installed" is displayed, but my system hangs.

> **Answer:** Verify that the CMOS interrupt structure is set to INTA and the CMOS IRQ level matches the jumper settings on the motherboard. Refer to your PC user manual.

Question: On boot-up, not all the peripherals are scanned and recognized.

> **Answer:** Verify that each of the SCSI devices on the bus has its own distinct SCSI ID number and all peripherals are receiving power. Refer to your peripheral manual for information regarding changing SCSI ID's.
>
> Verify the SCSI Termination is set correctly. Make sure the last peripheral on the SCSI bus has termination. See the peripheral manual for proper termination information.
>
> After the above steps are executed, if you are still not recognizing all attached peripherals, configure the host adapter to operate in an Asynchronous Transfer mode by changing its setting under the SCSI Devices Setup section of the SmartSCSI™ Setup Utility. This feature is discussed thoroughly in the chapter entitled Host Adapter Setup.

Question: On boot-up, the message "Missing Operating System" is displayed. The boot drive is greater than 1 gigabyte.

> **Answer:** Verify the "DOS SPACE> 1 GB" is enabled in the INI-9100U/9100UW SmartSCSI™ Setup Utility.

Question: Under SCO UnixWare, the system displays a panic message or crashes during bootup:

> **Answer:** Reboot the system and verify that the INI-9100U/9100UW is using IRQ10. Please Refer to your system documentation to set the interrupt levels and your peripheral documentation for help in setting SCSI ID's.
>
> In order to boot from the old UnixWare kernel, reboot the system and execute the following steps:
>
> - Begin an interactive boot session by pressing the **<SPACEBAR>** at the BOOTING UNIXWARE prompt.
> - At the system **[boot]#** prompt, type **KERNEL=unix.org <ENTER>**
> - Type **go <ENTER>.**
> - Consult the *SCO UnixWare Installation Handbook* "Troubleshooting" section to help isolate the problem. If it becomes necessary to remove the Initio device driver, please consult the "Removing the Initio Driver from a SCO UnixWare System" section of this document.

B: DOS Space > 1GB

The default disk head mapping for Initio SCSI host adapter is 64 heads and 32 sectors. Under this configuration, the MS-DOS limit is 1024 cylinders per drive. This translates to a maximum accessible capacity of 1 GBytes per drive. By changing the head mapping to 255 heads and 63 sectors, the "DOS Space > 1GB" option can support disk capacities up to 8 GBytes under MS-DOS.

Warning: If you have already installed the operating system on your hard drives, changing the head mapping will corrupt your files and cause other unexpected problems. Before changing any "DOS Space > 1GB" option setting, please back up your disk drives. Then you should run the FDISK utility to delete all the partitions on your selected disk drive. At this point you can switch the setting, reinstall the operating system, and restore your backed up files.

All device drivers for the INI-9100U/9100UW Host Adapter will support different head mappings based on the setting of "DOS Space > 1GB" option.

MS-DOS, OS/2 & Windows NT

Under MS-DOS, OS/2 & Windows NT, we recommend you enable "DOS Space > 1GB" option if your SCSI hard disk has more than 1 GByte capacity.

NetWare 386

NetWare does not have a 1 GByte barrier. Therefore, the "DOS Space > 1GB" option is not required to be enabled; however, you must verify the boot partition is located below 19100UW4 cylinders. If the size of your boot partition is greater than 1 GByte or the location of the boot partition is beyond 1 GByte, you should enable the "DOS Space > 1GB" option.

SCO UNIX

SCO UNIX does not have a 1 GByte barrier. Therefore, the "DOS Space > 1GB" option is not required to be enabled; however, you must make sure the root file system is located below 19100UW4 cylinders in order to perform the kernel boot routines. If the size of the root file system is greater than 1 GByte or the location of root file system is beyond 1 GByte, you should enable the "DOS Space > 1GB" option.

SCO UNIX can not support different head mappings for each disk drive under the same host adapter. The head mapping will be based on the setting represented by target ID 0.

Drives with Multiple Operating Systems.

It is mandatory that the same head mapping be used across multiple operating systems on one drive. However you can use different head mappings on different drives with the exception of SCO UNIX. It is recommended that you enable "DOS Space > 1GB" option if the capacity of your SCSI hard disk has more than 1 GByte.

Glossary

This Chapter Is About

- **Common terms and definitions**

Definitions of Terms

active I/O process   An I/O process that is presently in execution (not queued).

byte: This term indicates an 8-bit construct

connection   An initial connection or reconnection. A connection can only occur between one initiator and one target.

current I/O process   The I/O process that is presently connected on the SCSI bus.

disconnect   The action that occurs when an SCSI device releases control of the SCSI bus, allowing it to go to the BUS FREE phase

host adapter   A device which connects between a host system and the SCSI bus. The device usually performs the lower layers of the SCSI protocol and normally operates in the initiator role.   This function may be integrated into the host system.

initiator   A SCSI device that requests an I/O process to be performed by another SCSI device (a target).

I/O process   An I/O process consists of one initial connection and zero or more reconnections, all pertaining to a single command or a group of linked commands.   More specifically, the connection(s) pertain to a nexus in which zero or more command descriptor blocks are transferred. An I/O process begins with the establishment of a nexus. An I/O process normally ends with the BUS FREE phase following successful transfer of a COMMAND   COMPLETE or a RELEASE RECOVERY message. An I/O process also ends with the BUS FREE phase following an ABORT, ABORT TAG, BUS DEVICE RESET, CLEAR QUEUE message, or a hard

RESET condition, or an unexpected disconnect occurs.

logical unit   A physical or virtual peripheral device addressable through a target.

logical unit number   An encoded three-bit identifier for the logical unit.

peripheral device   A physical peripheral device that can be attached to an SCSI device, which connects to the SCSI bus. The peripheral device and the SCSI device (peripheral controller) may be physically packaged together.   Often there is a one-to-one mapping between peripheral devices and logical units, but this is not required. Examples of peripheral devices are: magnetic disks, printers, optical disks, and magnetic tapes.

queue tag   The value associated with an I/O process that uniquely identifies it from other queued I/O processes in the logical unit for the same initiator.

reconnection   A reconnection is the result of a reconnect and it exists from the assertion of the BSY signal in a SELECTION or RESELECTION phase until the next BUS FREE phase occurs.

SCSI address   The hex representation of the unique address (0-15) assigned to an SCSI device. This address would normally be assigned and set in the SCSI device during system installation.

SCSI ID   The bit-significant representation of the SCSI address referring to one of the signal lines dB(7-0).

SCSI device   A host adapter or a target controller that can be attached to the SCSI bus.

target   An SCSI device that performs an operation requested by an initiator.

Product Warranty

Initio Corporation warrants to the original purchaser that this product shall be free from defects in material and workmanship for a period of 5 years from the date of purchase. Should this product, in the judgment of Initio Corporation, prove to be defective, Initio Corporation will at its option repair or replace the product once it has been returned to Initio Corporation free of charge. Any replaced parts or products become the property of Initio Corporation. You may obtain warranty service by first getting authorization from Initio Corporation then returning this product with proof of delivery date, shipping charges prepaid, to Initio Corporation. This warranty does not apply to the software component of the product nor to any product which has been subjected to misuse, accident, abuse or use in a manner inconsistent with normal host adapter operations. The original purchaser must be registered with Initio Corporation (by mailing the Product Registration Card) to qualify for warranty coverage. This remedy is your exclusive remedy for breach of this warranty.

INITIO DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. INITIO SHALL BE LIMITED TO THE WARRANTY PERIOD SPECIFIED ABOVE. ALL OTHER WARRANTIES ARE EXCLUDED. INITIO'S TOTAL LIABILITY HEREUNDER SHALL NOT EXCEED THE PRICE PAID FOR THE PRODUCT PURCHASED. IN NO EVENT SHALL INITIO BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGE ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE PRODUCT, EVEN IF INITIO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

Class B Equipment
Information to User

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions contained in this manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that of the receiver.
- Consult the dealer or a experienced audio television technician.

Note: Connecting this device to peripheral devices that do not comply with CLASS B requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure the use of this product does not contribute to interference, it is necessary to use shielded I/O Cables.

Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.

Declaration of the Manufacturer/Importer

We hereby certify that the INI-9100UW and INI-9100U PCI-SCSI Bus Master Host Adapter, in compliance with the requirements of BMPT Vfg 243/1991, is RFI suppressed. The normal operation of some equipment (e.g., signal generators) may be subject to specific restrictions. Please observe the notices in the user's manual.

The marketing and sale of the equipment was reported to the Federal Office for Telecommunication Permits (BZT). The right to retest this equipment to verify compliance with the regulation was given to the ZZF.

EN 55 9100UW2 Declaration of Conformance

This is to certify that Initio INI-9100UW and INI-9100U PCI-SCSI Bus Master Host Adapter is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 9100UW2:1987 Class B (CISPR 22:1985/BS 6527:1988).

EN50081-1 GENERIC EMISSIONS STANDARD
EN50082-1 GENERIC IMMUNITY STANDARD

1) IEC 801-2 :1984(1000-4-2:1995);
2) IEC 801-3 :1984(1000-4-3:1995);
3) IEC 801-4 :1988(1000-4-4:1995).